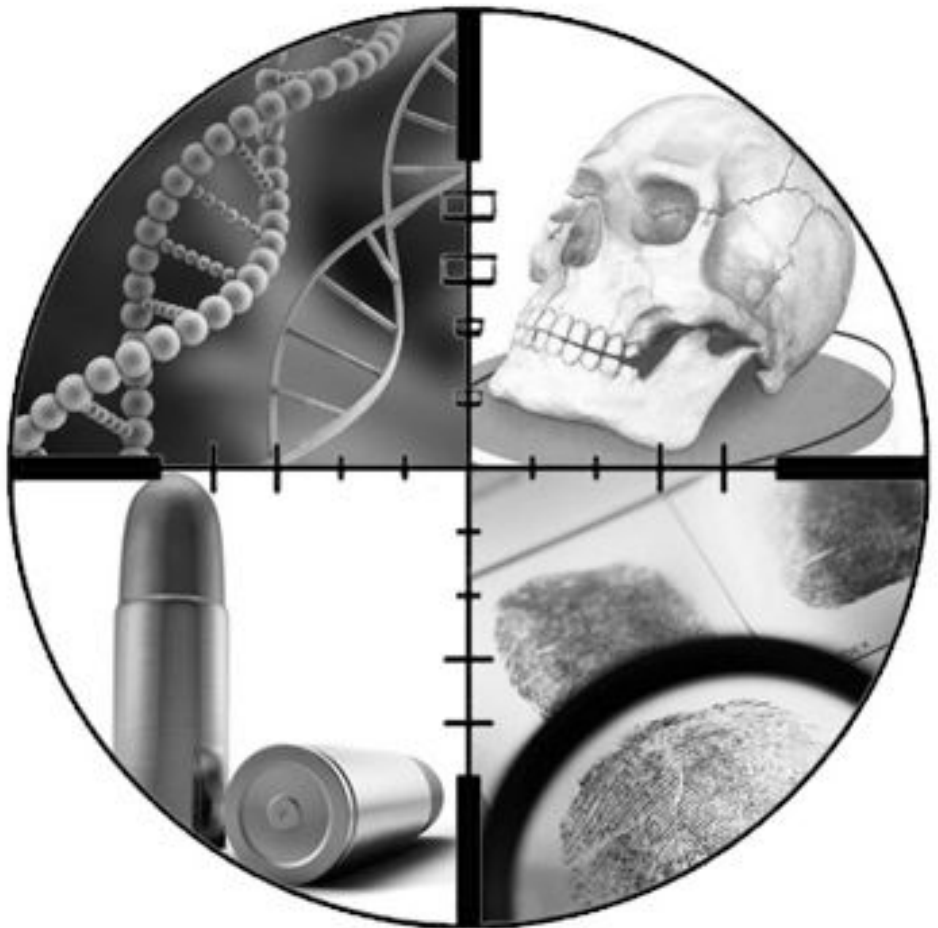




Forensic Medicine Notes



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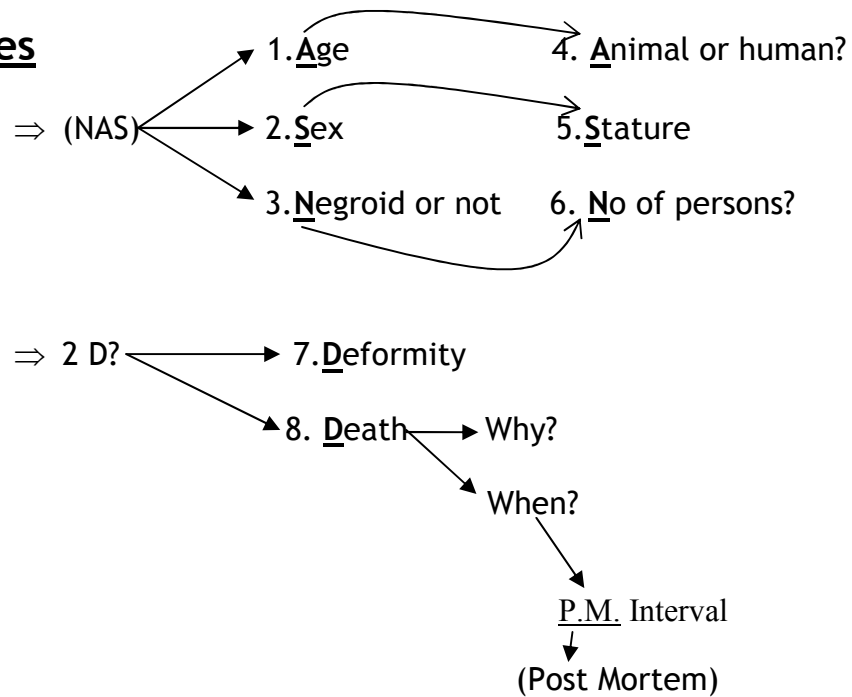
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Identification

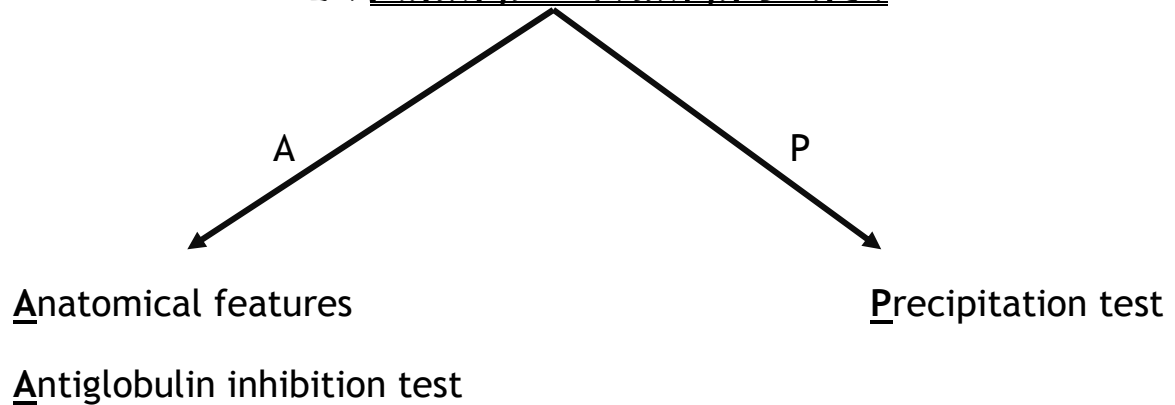
1. Assailant = متهم
2. Victim = ضحية
3. Medico legal importance (MLI)
4. Corona = medico legal expert
5. Sexual offence
6. Asphyxia
7. Firearm injury
8. Suicidal = انتحاري
9. Homicidal = جنائي
10. accidental
11. Execution (إعدام) = capital sentence of death
(Hanging)
12. Thermal injuries
13. Disputed paternity

Identification Of bones

Bones



Q1: Animal or Human Bone ?



3

- Q3: Death?

When?

3

- 3

Why?

When? (P.M. Interval)

- It may also depend on place of burial → Preservation
→ Rapid dissipation

③ { Congenital → e.g. → Cleft palate
Extra finger
Acquired → Malunion of fracture
Occupational → Shoe Maker → Depressed sternum

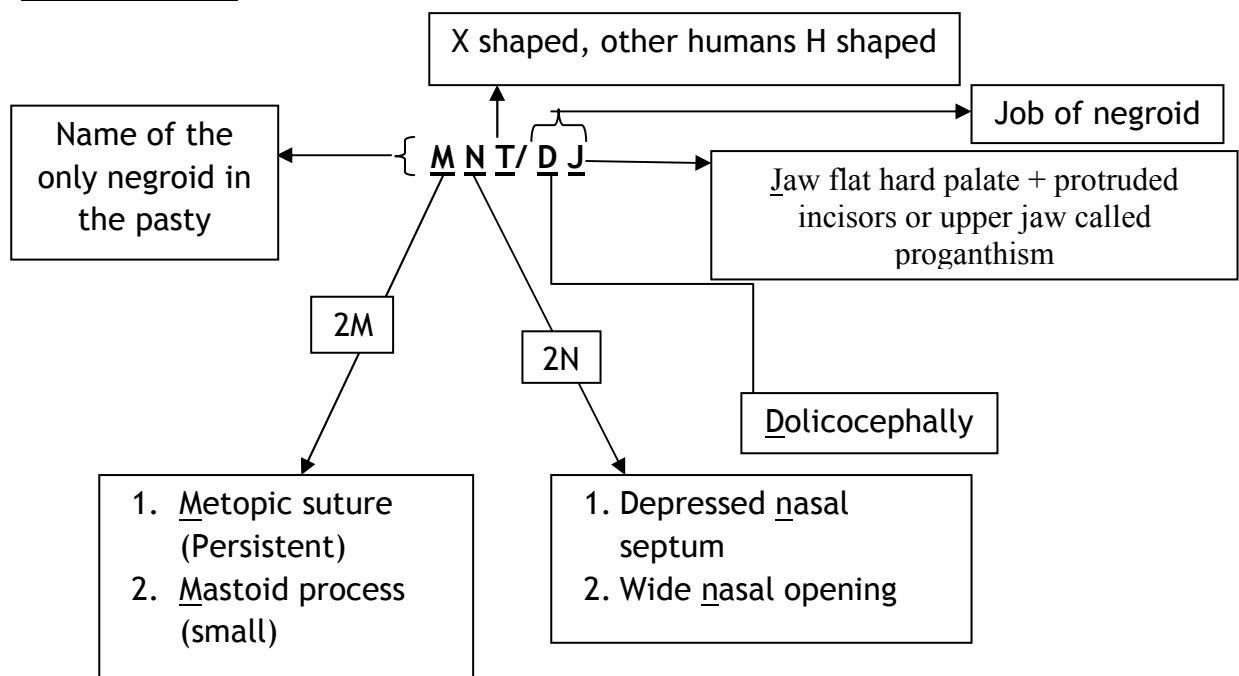
Q5: Stature (Written) >>>>>> Karl Pearson's Formula

To get the length of the person from the bone

Femur → 25% of the height
Humerus → 18% of the height

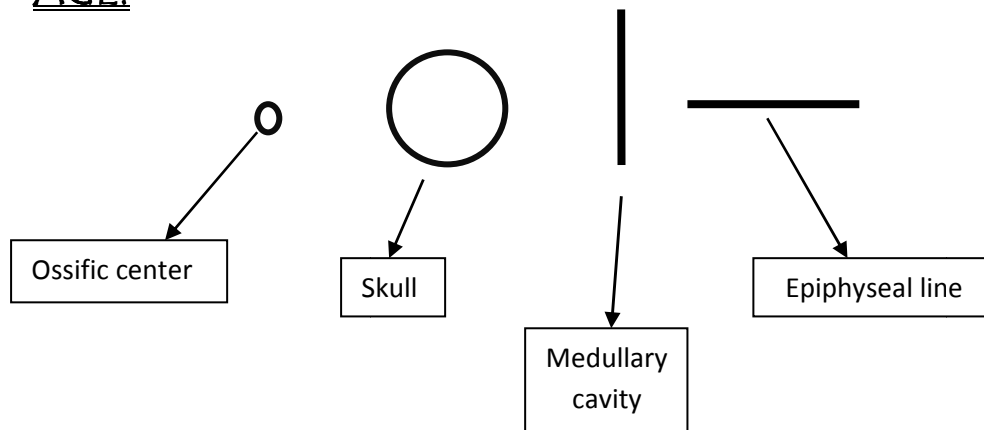
Q6: Negroid or not ? Or Identification of race from bone?

(Written)

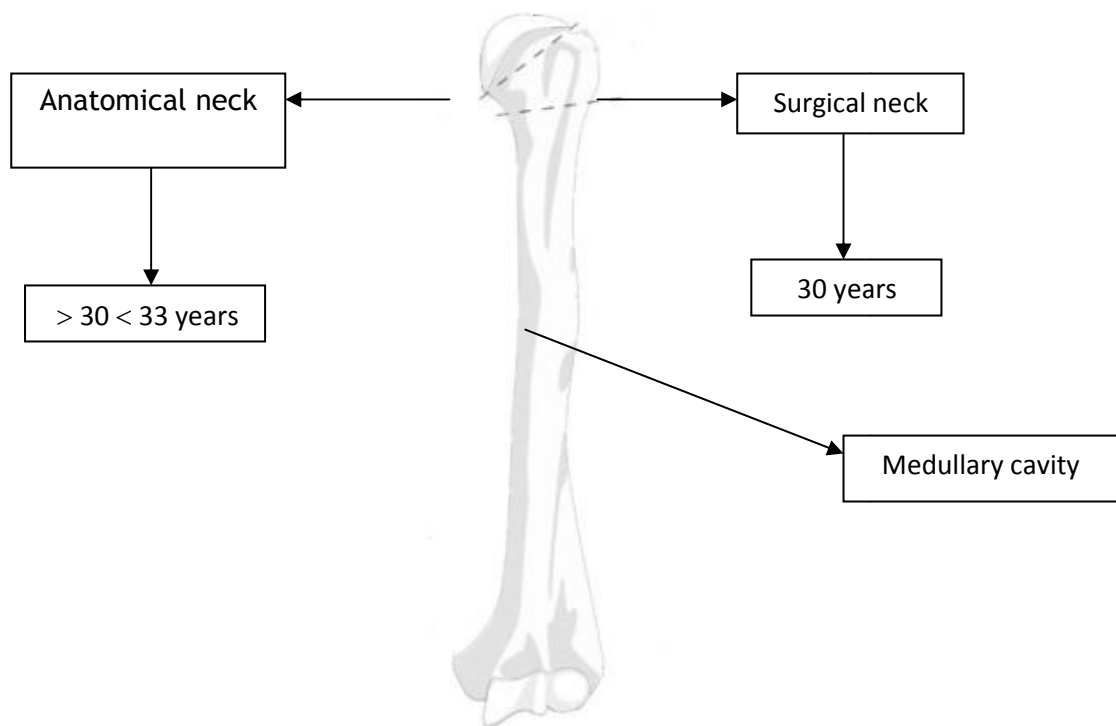


Identification of bone

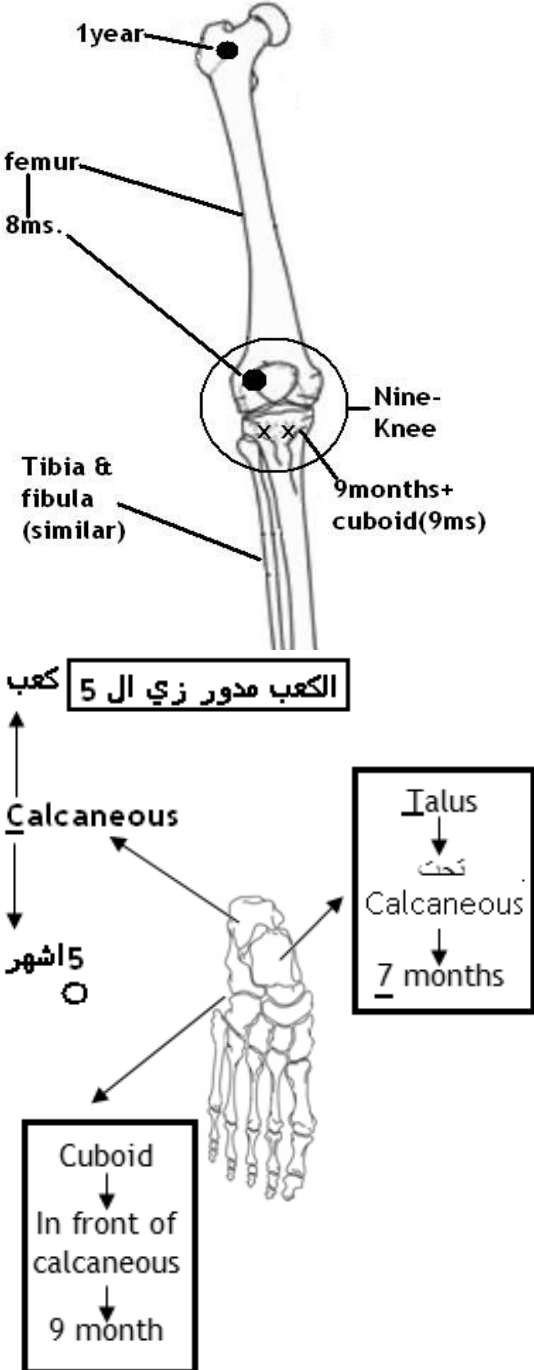
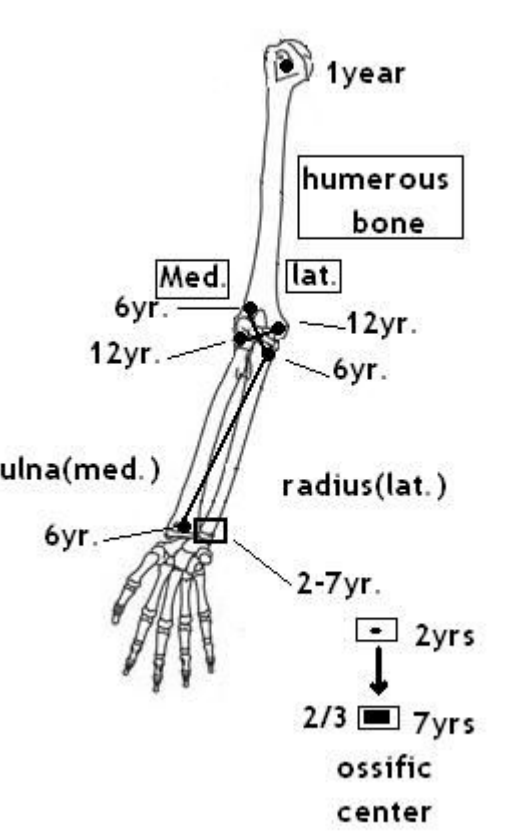
AGE:



❖ Medullary cavity:

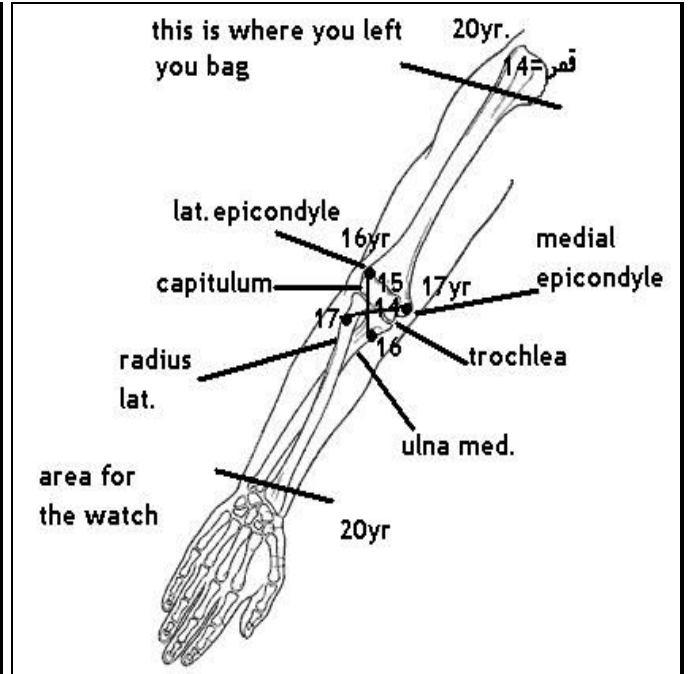


Ossific Centers:

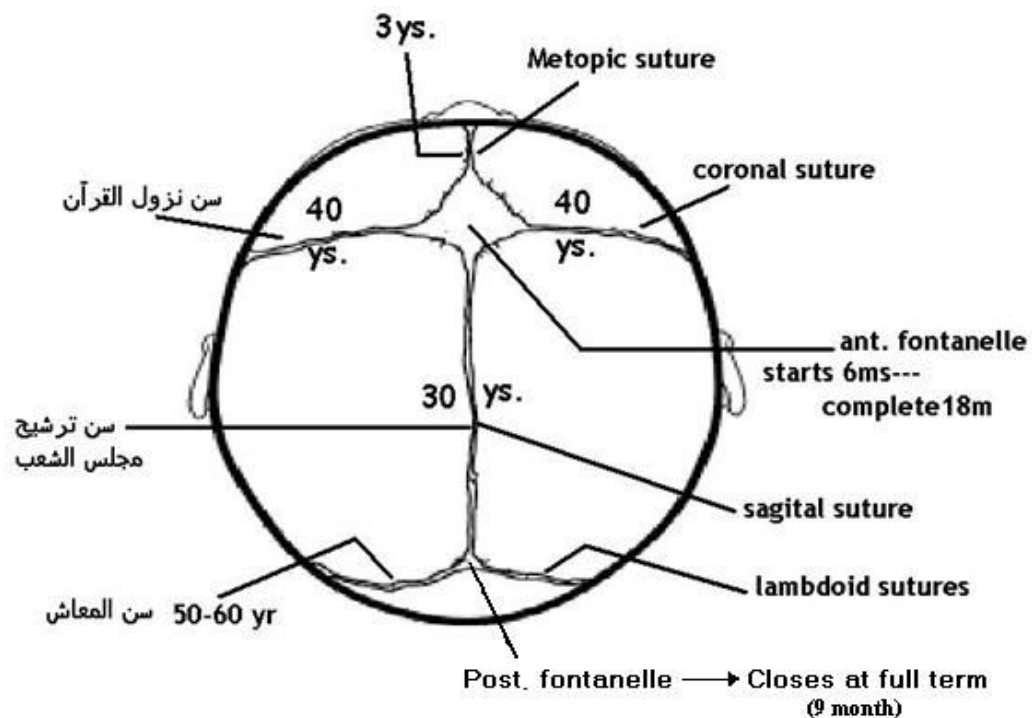
L.L. الطفل بيرفس برجله في بطن امه	U.L.
	

Epiphyseal lines UL, L.L., ClavicleUpper Limb:

1. Trochlea+ Capitulum
↓
14month → 14 قمر
2. Trochlea+ capitulum +shaft
↓
>15yr → سن الجمباز
3. كفك → see in your palm
Hands → 18 months
4. Watch & bag → 20 yrs.

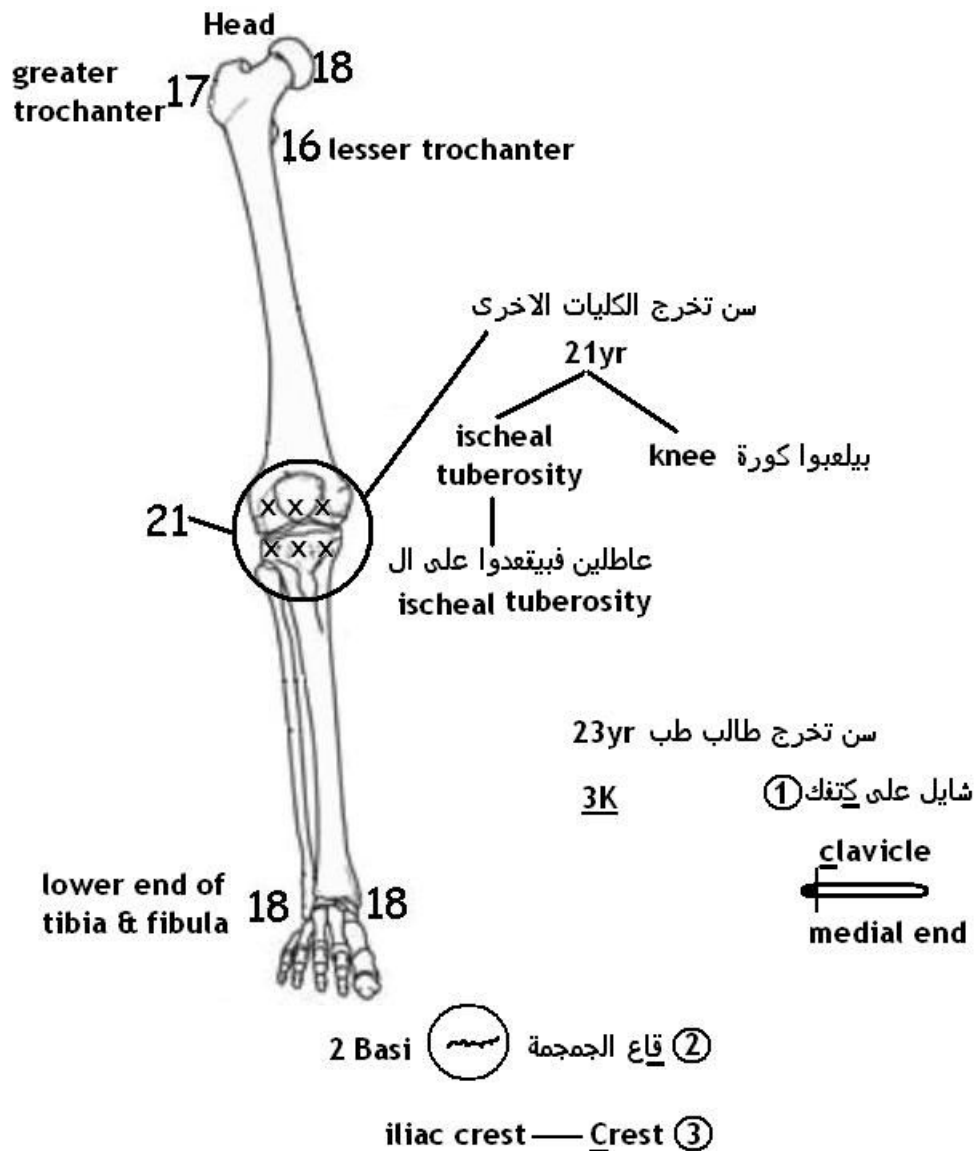
Skull

- 1- Dimensions: → full term → 13 inches (circumference)
- 2- Sutures: 8 fontanelle:



Mandible:

Child	Adult	Old
mandible milk teeth mental foramen	permanent teeth Mental foramen	Mental foramen

Lower limb:

Teeth eruption(Dentation)

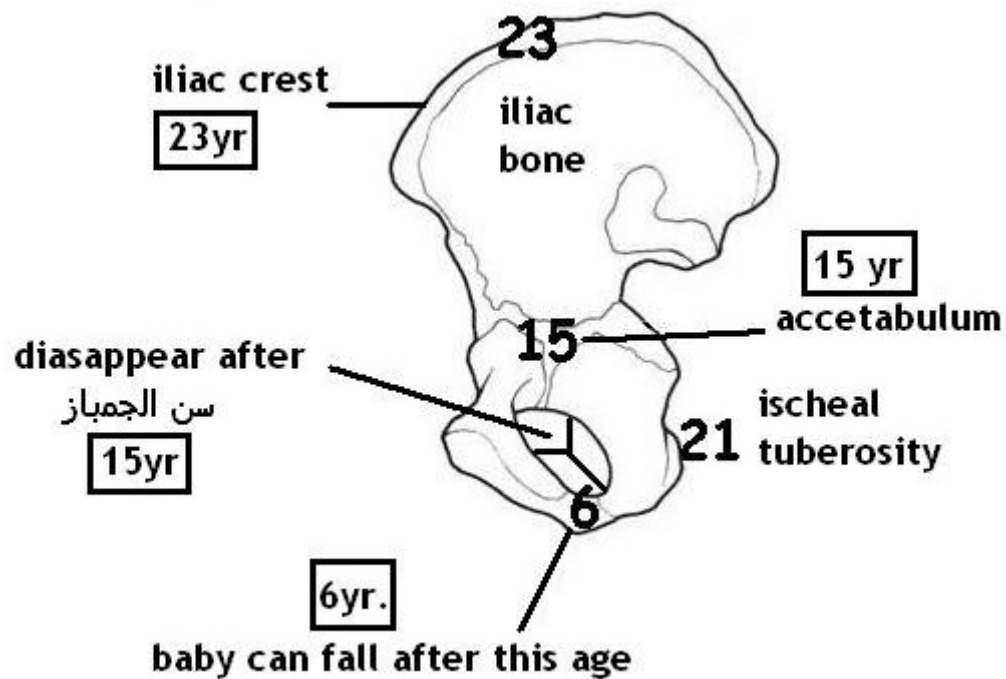
+MLI in book

Milk	permanent
$\begin{array}{c c} 5 & 5 \\ \hline 5 & 5 \end{array}$	$\begin{array}{c c} 8 & 8 \\ \hline 8 & 8 \end{array}$
#20	#32
7yr → age of discrimination باكل بيهم or بعض الناس	

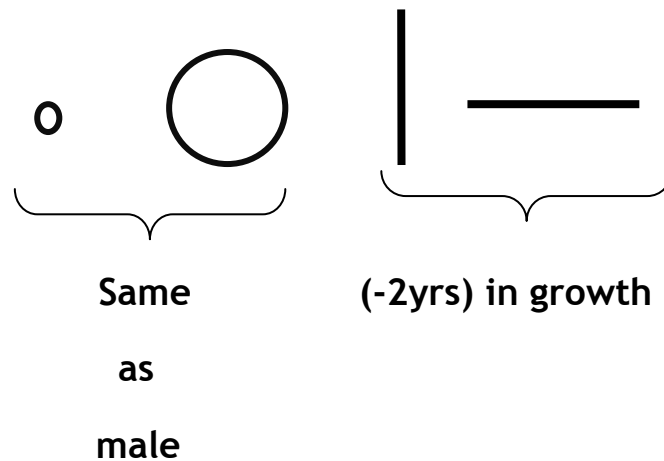
Sutures:

- Flat bones {
1. Hyoid  40 years (body of hyoid with greater cornu).
 2. Sternum  60 yr
40yr
 3. Skull → discussed before

4. Pelvis

Take Care:

After puberty, In female:



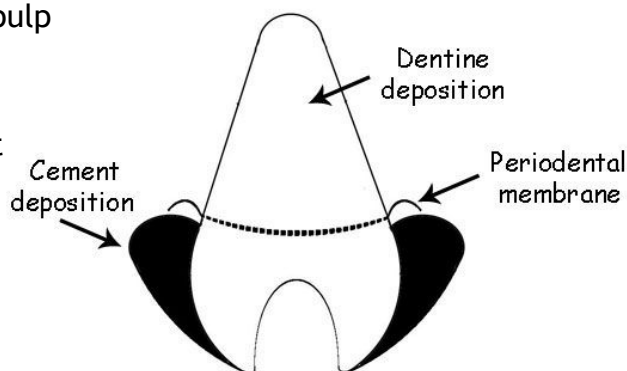
V.V.imp

MLI of teeth

1) <u>P</u> ersonal Identification	2) <u>B</u> ite marks	3) <u>P</u> oisoning
*Dental record: 1- Something you are born with 2- Acquired 3- From the dentist's records 4- <u>A</u>ge: Write all the ages of milk & permanent dentition 5- Sex → By DNA test 6- Race 7- Occupation e.g: tailor 8- Social standard	4A <u>A</u>ssailant → Size compare with the bite → Abrasions & bruises <u>A</u>nimal or human Animal Human == ○ <u>A</u>ge of bite <u>A</u>ssaults → Battered baby → Rape	a) <u>D</u>iscoloration of gum-teeth: <u>P</u>lumbum → <u>B</u>lue <u>M</u>ercury → <u>G</u>ray (gangrene) <u>C</u>admium → <u>C</u>igarette Yellow <u>B</u>ithmus → <u>B</u>lack <u>C</u>u → <u>G</u>reen b) <u>D</u>iscoloration of teeth: *Tetracycline → All the <u>E</u>xception → teeth Become yellow

After 25 years:Aging of teeth:

- 1) Attrition
- 2) Apical migration of periodontal membrane → due to attrition of teeth so the membrane doesn't go up but the teeth go down towards the membrane
- 3) 2ry dentine deposition in the pulp
- 4) Root resorption
- 5) Root transparent
- 6) Cement deposition on the root



Identification of sex:

1- After puberty

2- ♂ → larger
 → heavier
 → rough surface

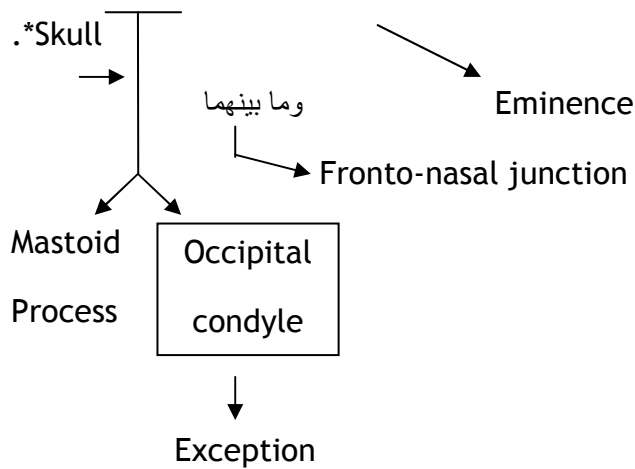
3- Bone	→ ORAL →	1- long bones	In order from up to down
		2- Flat bones	
		3 - Skull → 95% accurate	
		4- Sternum → 70% accurate	
		5- Pelvis → 98% accurate "most accurate"	

ORAL: always choose according to the seq. of most accurate

* * * Sternum :

- body > 2 × manubrium ♂

- body < 2 × manubrium ♀



In female wide & broader

*Pelvis
(Study from the book)

Rem.

Delivery

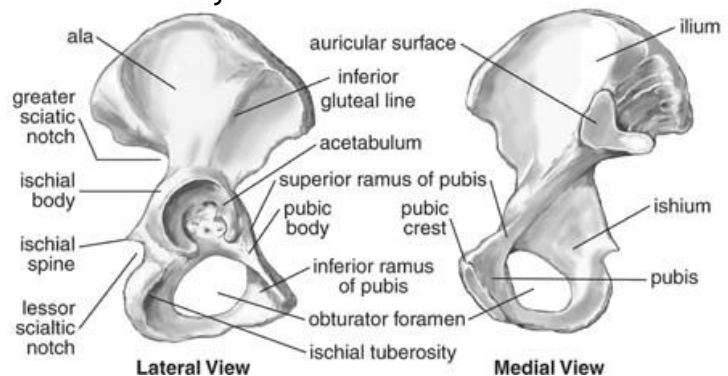
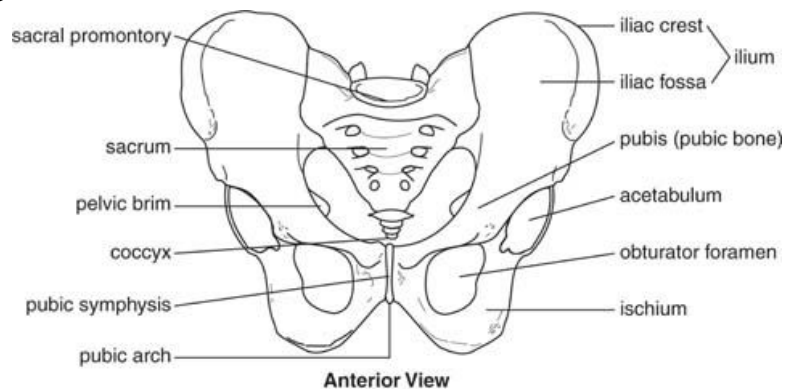
→ In females

وسيلة سهلة وسريعة

- 1) Iliac crest
- 2) G.S.N → V → female
→ U → male
- 3) Ischial spine
- 4) Periauricular sulcus
- 5) Pubic bone
- 6) Obturator foramen
- 7) Subpubic angle
- 8) Ilio pectineal line
- 9) Rem.

Periauricular sulcus

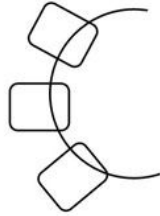
Pregnancy → Present in female only



Forensic Medicine Notes

10) Sacrum

In male



pieces 3

In female



Pieces 2

11) Acetabulum

Identification of Hair

Hair

- 1 - Identification.
- 2 - Scalping.
- 3 - Sexual offences .
- 4 - Burn.
- 5 - Firearm → singed at inlet.
- 6 - Toxicology.

Type of wound from Hair :-

Cut wound → hair → Sharply cut

Contused wound → Hair → brushed tip

Identification of hair:

- | | |
|--|---|
| <p><u>3 H</u></p> <ul style="list-style-type: none"> 1 - <u>H</u>air or Fibre 2 - <u>H</u>uman or Animal hair 3 - <u>H</u>air tip or root | <p><u>3 S</u></p> <ul style="list-style-type: none"> 4 - <u>S</u>ite of hair . 5 - <u>S</u>pecial person . 6 - <u>S</u>on or not . |
|--|---|

A- Hair or fibre :-

1 - Cotton → Curved & twisted ribbons

2 - Silk → Shiny + No segments

3 - Linen → Segments or Swellings " similar to animal hair "
" Bamboo-like " .

4 - Wool → +Scales

B- Human or Animal :-

	Human	Animal
1 - Cuticle " can't be seen "	1 layer of cells	> 1 layer
2 - Cortex	Continuous & thick	
3 - <u>M</u> edulla	<u>M</u> an only مقطعه و مسلوحه	

C- Hair tip & Root :-

Root

Bulky healthy root +
ruptured sheath →
Pulled by force → Sign of
struggle & resistance.

Flattened atrophied root
+ No sheath → Fallen by
itself.

Tip of hair → Date of cutting
→ Type of Instrument (Type of Wound)

Sharply cut 1 - Cut wound Date: 2 - Recently cut	Crushed Contused Blunt
Tapering tip Looks like > Date: cut > than 2 weeks	Rounded Reduced Date: cut < 2 weeks

➤ Certain person or Not :-Forms

- 1 - Fizzy with flattened & elliptical cut end → Negroid .
- 2 - Curled with oval cut section → Caucasians
- 3 - Silky with rounded cut section → Mongolians

➤ Special person :-

Sex → DNA "Chromosomal analysis"

"Karyotyping"

Y chromosome → ♂

By fluorescent microscope of hair follicle cells

Identification of living

- | | |
|---|---|
| 1 - Condition of identification of unknown. | C |
| 2 - Methods by police. | M |
| 3 - Methods. | M |
| 4 - Dactylography . | D |
| 5 - Disputed paternity. | D |

➤ Conditions of identification of unknown:

⇒ Child → disputed paternity

Lost infants & children .

Maternity hospitals .

⇒ Adults → No I .D

Marriage & inheritance

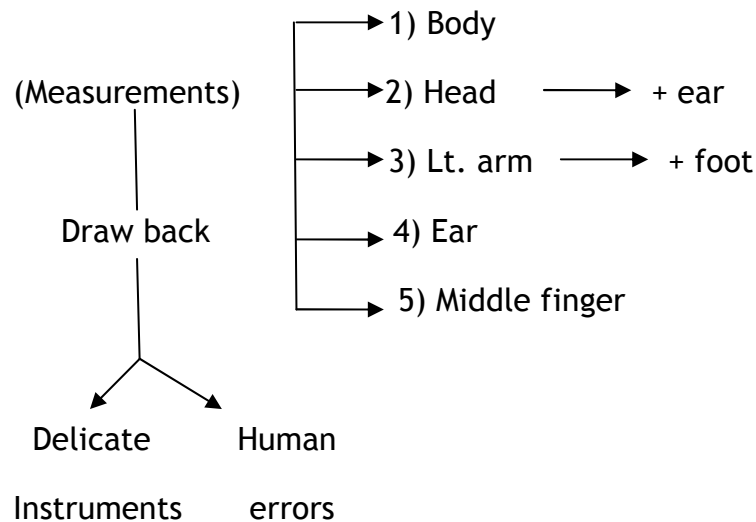
⇒ Old → true amnesia

Mental retardation

⇒ Accused → Assailant

Impersonation

Anthropometry



Methods of police

3P

1) <u>Bertillonage</u> syst.	2) <u>Portrait Parle</u>	3) <u>Prints</u>
Fill in gaps	a) <u>Face</u> (photo) + 2 photos + face views b) <u>Profile</u> _ shape _ size _ color of: - Hair - Moustache - Beard - Iris _ Voice	_ Finger print _ Retinal _ Voice _ Palatal _ Iris _ DNA _ Foot prints

Forensic Medicine Notes

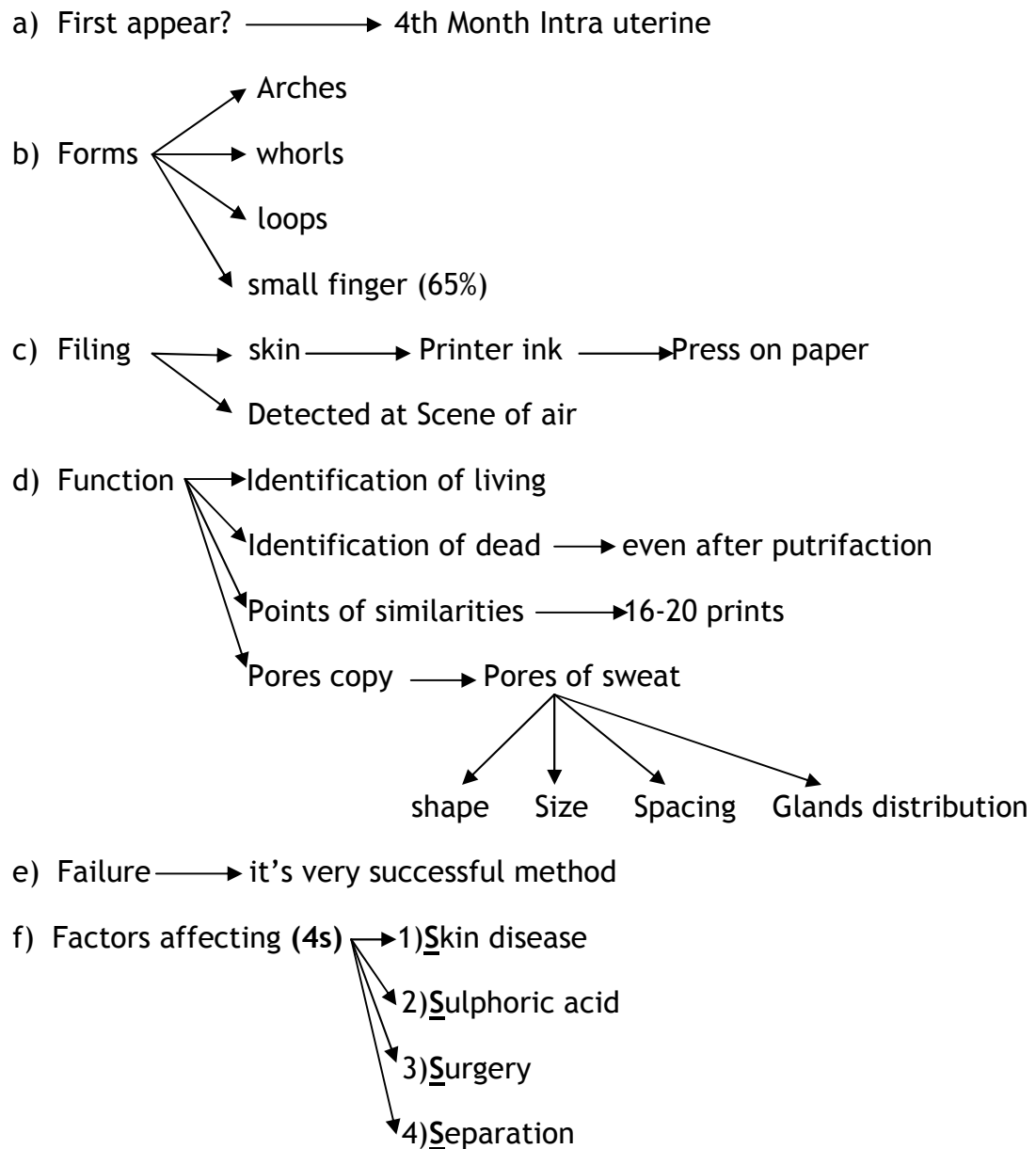
Methods

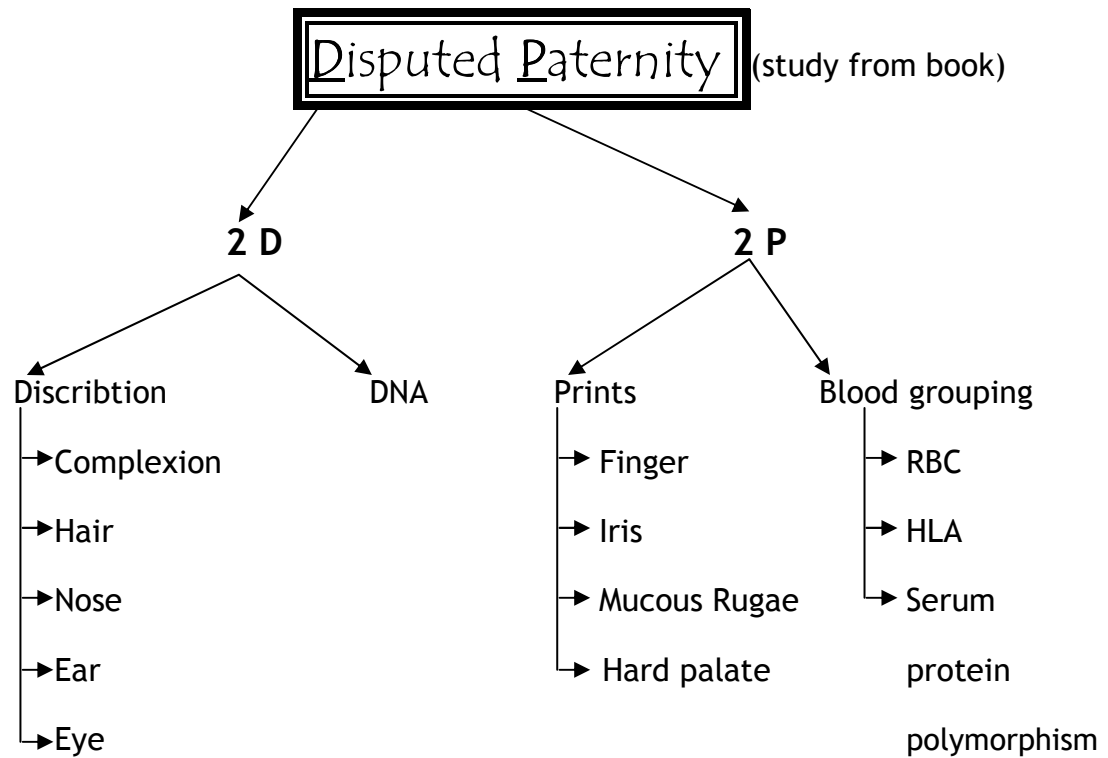
1) Consent

1 & 2 & 3	4) Blood group + DNA	5) Peculiar marks	6) Clothes & contents	7) Culture	8) Features
Similar to police		E.g: _ Tattoo _ Scars _ Congenital anomalies _ Previous wounds _ Operations _ Birth marks	_ Money _ Letters _ Cards _ Articles	_ Language _ Education	_ Gait _ Accent _ Hand writing _ Special tics

1 - <u>F</u> inger prints :	2 - Foot prints → Assailant Babies "hospital changes"
a- <u>F</u> irst appear b- <u>F</u> orms c- <u>F</u> iling d- <u>F</u> unction e- <u>F</u> ailure f- <u>F</u> actors affecting	3 - Retinal 4- Voice / Palatal / Sinus 5 - DNA finger prints

Forensic Medicine Notes





Identification of dead

- 1) Cloth
- 2) Feature
- 3) Congenital anomalies + scars + tattooing
- 4) Sex, age, race, stature (SARS)
- 5) Occupation

Identification of dead

1) Tattooing

To

3T

- 1) Type of persons
(Sailors, addicts, solders
Homosexual)
- 2) Type of pigments →
(Insoluble, eg: indigo, aniline
Carbon)
- 3) Type of tissues → dermis
Permanently fixed

Marking

3M

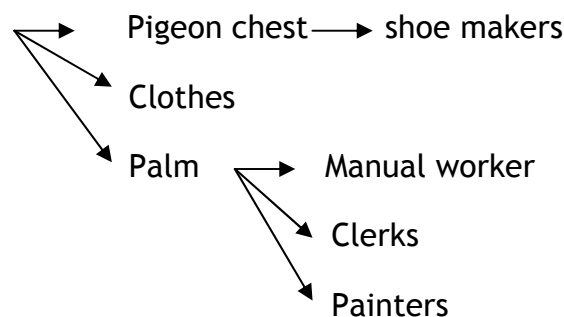
- 1) MLI → (Addicts, sailors, solders
homosexual)
- 2) Marked by surgery, caustics
skin disease as eczema
- 3) More than 1 design, eg: (initials,
address, religion, violence, love
intentions)

MCQ:

Social status

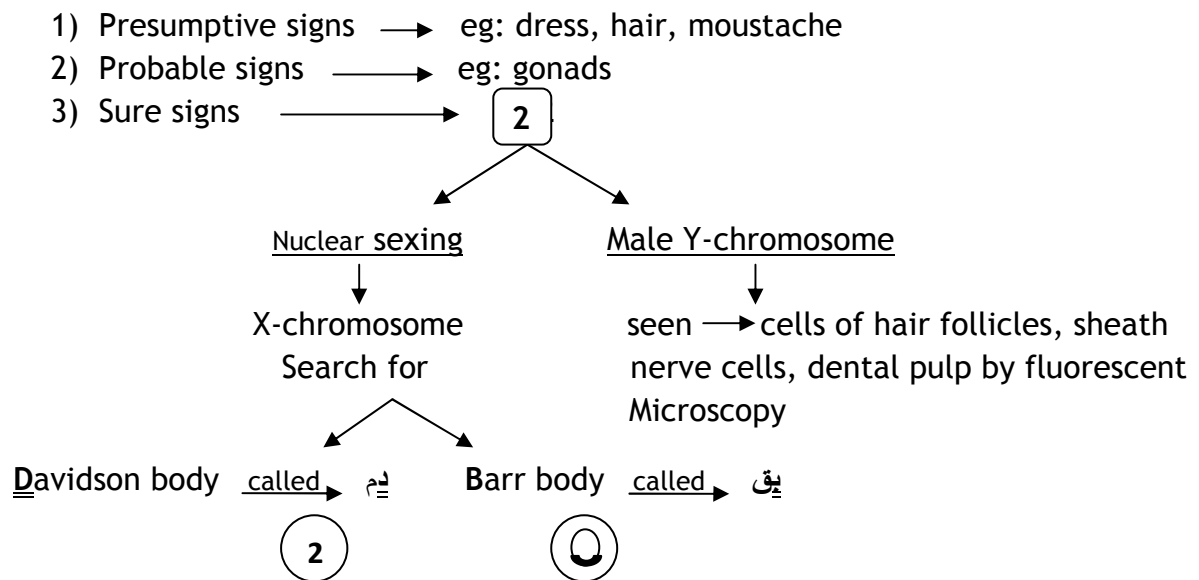
&

Occupation



2) Features

- 1) Complexion of skin
- 2) Facial characters:
 - a) Shape
 - Mouth
 - Ears
 - Eye
 - Nose
 - b) Slope of forehead
 - c) Hair
 - d) Shape
 - Eye brows
 - Moustache
 - Beard
 - e) Corneal opacities or scars
 - f) Teeth
- 3) Photographs
- 4) Finger prints

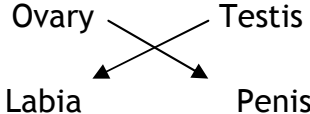
3) Sex Identification

- 4) Advanced putrefaction  uterus in female
Prostate in male

*Intersex $\longrightarrow$ P.T.O

Coexist in varying proportions:

- 1) Gonads agenesis (Absent gonads)
- 2) Gonads dysgenesis  Klein filter syndrome "XXY"
Turner syndrome "XO"
- 3) True hermaphrodite $\longrightarrow$ ovary + testis

- 4) False hermaphrodite 

Identification of age of dead body

(Intrauterine)

	1th month	2nd	3rd	4th	5th	6th	7th	8th	9th
Fetus	—	—	30g	100g	300g	750g	1.5Kg	2.5Kg	3.5Kg
Placenta	—	—	Formed	100g	200g	300g	400g	500g	600g
Fetus	1cm	Square of the month = 4cm	3 rd 9cm	4 th 16cm	5 th 25cm	30cm	35cm	40cm	45-50cm
	—	—	—	—	Calcaneus	—	Talus	Femur	Knee + Cuboid
	—	—	—	—	—	Testis ↓ Kidney	Internal Inguinal ring	External inguinal ring	Scrotum
	—	Two ↓ (2 nd month) 2 openings	—	Four ↓ (4 th month) Finger prints Appearance + female or Male	Fifth ↓ Fissure + vernix caseosa	Sixth ↓ Small hair حواجب رموش Above pupis	Seven ↓ Skin is Wrinkled Separated From Mother	5 + 7 + 9 Month	Posterior Fontanelle Closed + Head "13" رقم الحظ Nine ↓ Nails 50 cm  * 

Period from birth to 25 years

- Birth → 25 years
- 1st 2 years → Milk teeth
- 2-6 years → 3S
 - Stature → 5cm/year
 - Size & wt. → 2Kg/year
 - Suture → Pubis (ischium unit pubic ramus)
- 6-12 years → Permanent teeth
- 12-14 years →
 - Menses in female / ejaculation in males
 - Hair → pubic hair appears early
 - Breast in females / penis in male
- 14-23 years → Bones
- Above 25 years:
Not accurate



Age of MLI

	MLI	Estimation
<u>S</u> ix	<u>S</u> chool	○ ○ / —
<u>S</u> even	<u>S</u> tart punishment (Discrimination)	
<u>T</u> en / <u>T</u> welve	<u>T</u> o mother	
<u>F</u> ourteen	<u>F</u> alse male	
<u>S</u> ixteen	بیت الستات ID card	→ Female → Male (16+2= <u>18</u>)
<u>E</u> ighteen	Consent for rape <u>18</u>	→ Female → Male (18+2= <u>20</u>)
<u>T</u> wenty one	<u>T</u> otal civil rights	

Blood Stains

v.imp.

- 1) Is red stain blood or not?
- 2) Human or animal?
- 3) Belong to a certain person?

1) Is red stain blood or not?

Preliminary	Confirmatory				
Blood (-ve) (oxidase) + H ₂ O ₂ + color change 1) <u>G</u> uaiacum → <u>G</u> reen 2) <u>B</u> enzidine → <u>B</u> lue 3) <u>P</u> henolphthalein (Kasthe_meyer) → <u>P</u> ink	1) <u>M</u> icroscopical } RBC Man or animal } 2) <u>S</u> pectroscopical } Hb Toxins } 3) <u>M</u> icrochemical:				
		Depends on	Aim	Reagent + procedure	Result
	a) Takayama	Hb	Blood Or not	Alkalies + Bl.reagent	R.A Haematin Or Hemocedrin (Pink)
	b) Teichman	Hb	Blood Or not	Acid + Bl.reagent	Acid Haematin (Brown)

- 1) spectroscope
- 2) Microscope

Animal	Mammilated	Non_mammilated
Rounded + Non_nucleated	Oval + Non_nucleated	Oval + Nucleated

2) Human or animal?

- I. Microscopically
- II. precipitin test

Principle	Aim	Antigen	Antibody	Procedure	Method
Protein Ag-AB Reaction (precipitation)	Human Or Animal protein	???	Antihuman Serum ↓ Animal Inoculated With human Protein ↓ Response Reaction of AB (Anti_human serum) ↓ A P C D • <u>A</u> verage (Neutral) →To prevent Precipitation by PH changes • <u>P</u> otent • <u>C</u> lear • <u>D</u> iluted (to be specific) →To prevent other group reaction		1)Macro 2)Micro 3)Gel diffusion

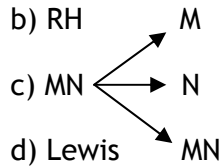
3) Certain person or not?

- 1) Blood: —→ a) RBCs
 b) WBCs
 c) Serum protein

a) RBCs:

1) Antigen:

- a) ABO
 b) RH
 c) MN
 d) Lewis
 e) Kell
 f) Lutheran
 g) Kidd
 h) S-factor
 i) P-factor



- 2) Hemoglobin: { Hb A —→ Adult hemoglobin
 Hb F —→ Fetal hemoglobin

- 3) Iso-enzymes: - G-6-PD
 - PGM
 - PGD

- b) WBCs: HLA —→ A, B, C, D
 DR, DQ

- c) Serum: —→ Haptoglobin, lipoprotein, GC, GM

ABO

Phenotype	A	B	AB	O
Genotype	AA Or AO	BB Or BO	AB	OO
Antigen	A	B	A & B	No
Antibody	Anti-B	Anti-A	—	No Anti-B & Anti-A

→ MLI:

- 1) Identification
- 2) Disputed paternity
- 3) Hemolytic transfusion

MN

Phenotype	M (25%)	N (25%)	MN (50%)
Genotype	MM	NN	MN
Antigen	M	N	M & N
Antibody	X	X	X

→ MLI:

- 1) Identification
- 2) Disputed paternity

Forensic Medicine Notes

RH

Phenotype	85% RH +	15% RH -
Genotype	DD Or Dd	dd
Antigen	Cc, Dd, Ee	—
Antibody	—	Anti-D

→ MLI:

- 1) Blood transfusion
- 2) Erythroblastosis fetalis

DNA

	Procedure	MLI
1) No/Yes identification 2) Nucleated cells 3) Nucleotides 4) Non-coding/coding area	1) PCR → Amplification 2) RFLP → Endonucleosis → Electrophoresis	D N A D → Disputed paternity ↳ Disasters ↙ ↘ Body Mixed remains stains N → Non-coding ↓ Sex identification A → Assault

MLI of blood grouping:

1) Identification	2) Disputed paternity	3) I.C.B.T
a) <u>Civil</u> 1. Personal identity 2. Premarriage 3. Blood transfusion b) <u>Criminal</u> 1. Semen 2. Saliva 3. Blood	<u>Conditions:</u> 1. Mistake in hospital (Mixing) 2. Mistake of child (lost) 3. Mistake of mother (Father denies) - ABO, RH, MN - DNA	<u>I.C.B.T</u> <pre> graph TD ICBT[I.C.B.T] --> Temp[Increase in temp] ICBT --> Chest[Chest pain] ICBT --> Bilirubin[Bilirubin] ICBT --> Tubule[Tubule] Tubule --> Hb["(obstruct by Hb)"] Bilirubin --> Jaundice[Jaundice] </pre> <u>Investigations</u> N.B: ICBT= Incompatible Blood transfusion

Microchemical Tests

Test	Aim	Reagent	Procedure	Result
1) Takayama ↓ Alkalies	Confirmatory ↓ Blood or not	Reducing agent ↓ Most famous Is Glucose + Pyridine + H ₂ O		Reduce alkaline Hematin or Hemochromagin ↓ Pink crystals
2) Teichman	Confirmatory test	Glacial acetic Acid + (Sodium شلة) . Na chloride . Na Iodide . Na Bromide		Brown rhombic Shaped crystals ↓ Acidic hematin Or hemohydrochloride

2) DNA:

a) PCR (Amplification) → polymerase chain reaction.

b) RFLP → Restriction fragment length polymorphism.

Death

Oral

- 1- Causes of death → far causes of death
- 2- Causes → proximate (modes of dying)
- 3- Manner
- 4- Mechanism

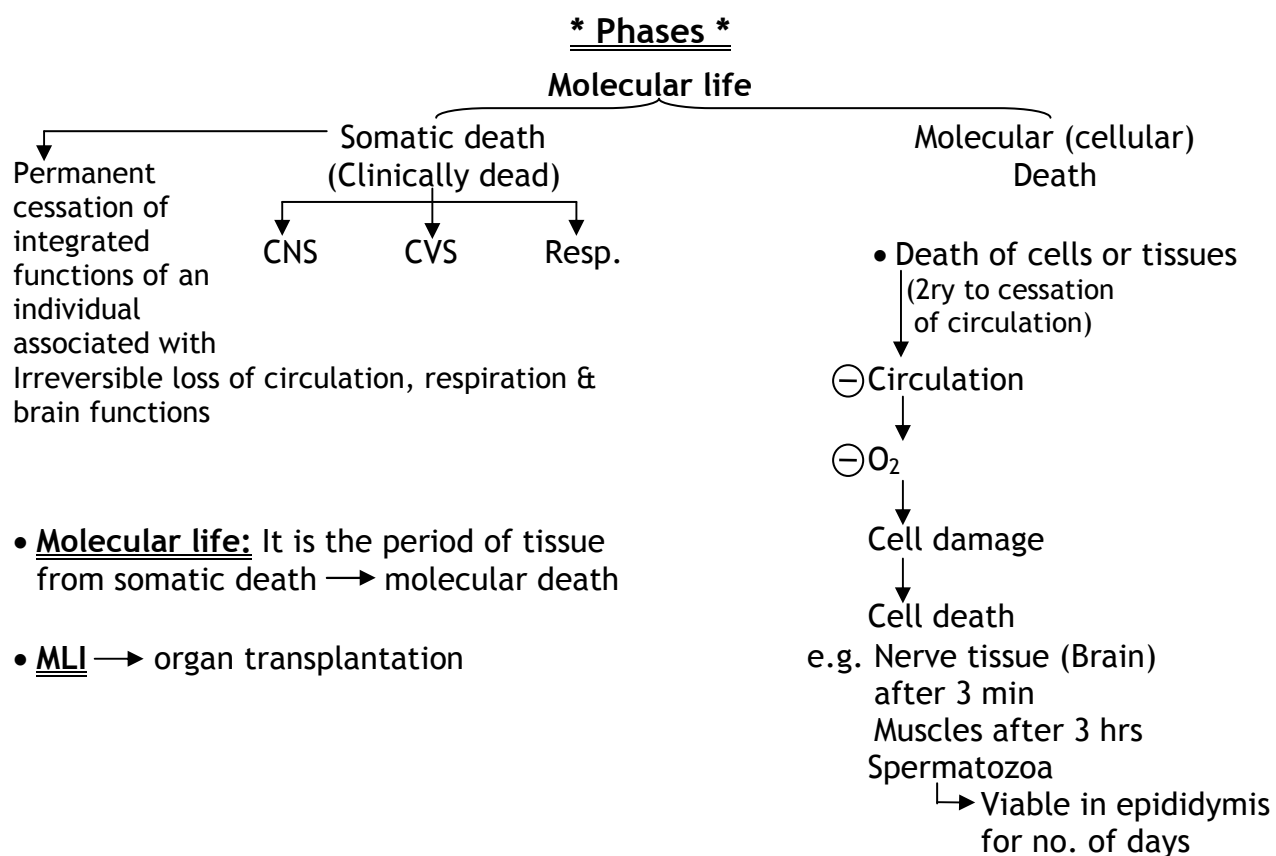
- Far causes of death
 - Accident
 - Poisoning
 - Disease
- Proximate causes
 - CNS
 - CVS
 - Respiratory
- Manner
 - Suicidal
 - Homicidal
 - Accidental
 - Natural
- Mechanism → Physiological derangement → e.g. (Hge, septicemia, cardiac arrhythmia)

Proximate causes of death: (Modes of dying)

- 1- CNS → Comatosed before death
- 2- CVS → Syncope before death (HF)
- 3- Respiratory → Asphyxia

	Accident	Disease	Poisoning
1- CNS (coma)	• Hge • Depressed bone	• Tumor • Uremia (metabolic disorders)	• Narcotics
2- CVS (syncope)	• Stab wound • Reflex cardiac inhibition (R.C.I.)	• Infarction • Aneurysm	• <u>D</u>igitalis • <u>N</u>icotine • <u>A</u>conitine
3- Respiratory (asphyxia)	• Throttling • Strangulation	• Pulmonary disease e.g. Diphtheria • Oedema of glottis • Tumors of RC in medulla	• Oxalic acid • Strychnine • Morphine

Stages of death



V.Imp
written

- 1- Suspended animation (apparent death)
- 2- Sudden natural death
- 3- Surgical death
- 4- Brain death

1- Suspended animation: (إحياء معلق)

A. Definition → Vital process ↓↓
+ life (still compatible)

B. Causes → a) Involuntary: 3S

In these causes
don't announce
that the person
is dead until
proved

- Shock → Drowning
→ Electrocution
- Sedatives & Narcotic drugs
- Surgical shock (Anesthesia)

b) Voluntary: e.g. yoga practitioners

C. MLI 3E

These tests are
done to confirm if
death has occurred
or not and
therefore avoid
early burialدفن

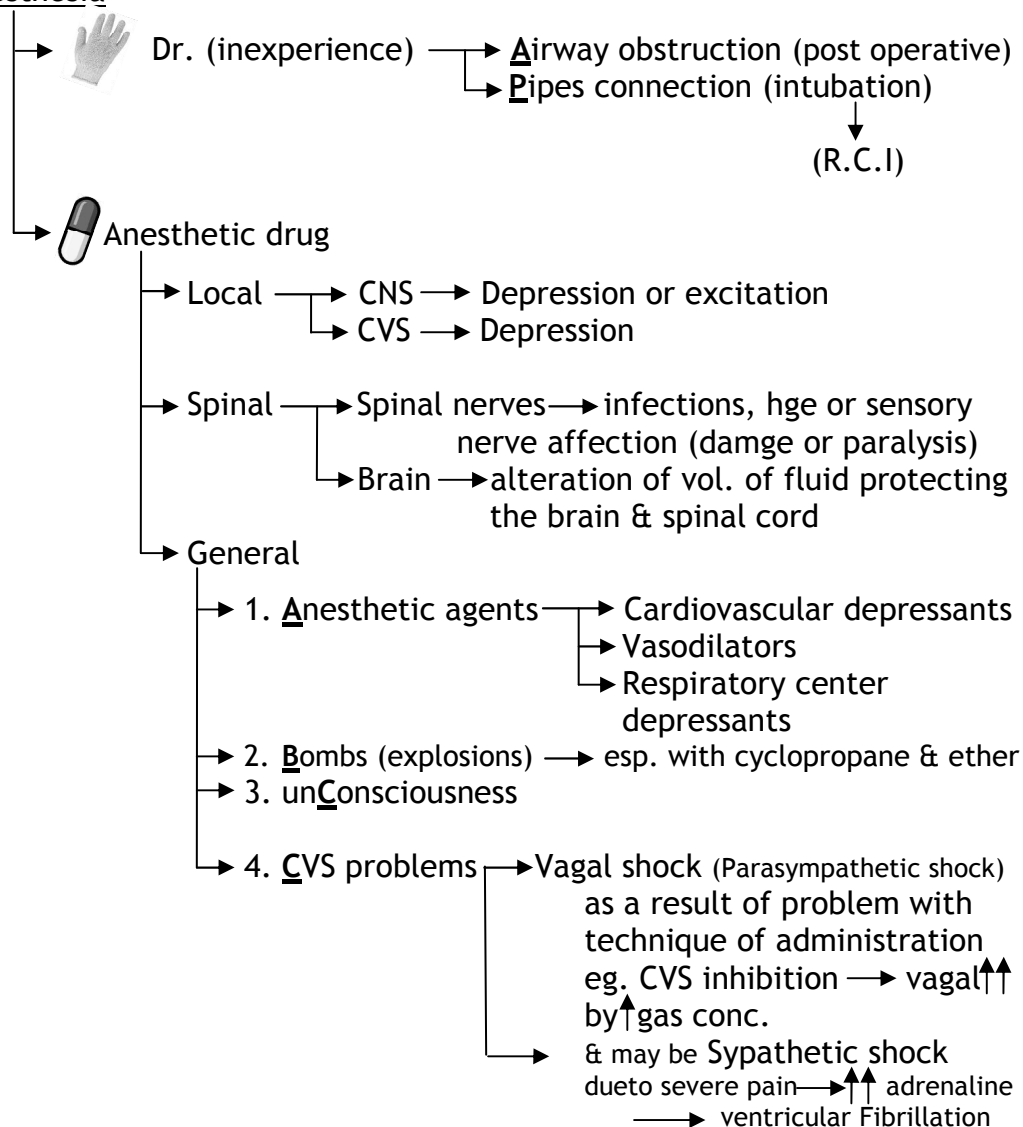
- 1. ECG, EEG, (electrical instruments are used to prove if person is dead or not)
- 2. Early burial (pre-mature burial) → Avoided until proved

SIDS (Sudden Infant Death Syndrome)	SN (Adult) death (sudden natural)																					
SUDI= cot or crib death syndrome Definition: 1. Sudden(unexpected) 2. ⊖ Symptoms 3. ⊖ Sings 4. ⊖ P.M. → no cause of death Causes: 1. Viral or bacterial - Milk → 2. Allergy - Salt → 3. Electrolyte imbalance - Vit → 4. ↓Vitamin (deficiency) 5. CVS → Neurogenic shock → Arrhythmia 6. Resp. → Infection → Laryngeal spasm 7. CNS → Head injury 8. Adrenal 9. Para-thyroid } Insufficiency P.M. picture: <table> <tr> <td>ext.</td><td>Nose → bloody froth, tinged oedema in nostrils</td></tr> <tr> <td>int.</td><td>Lung → congestion & pet. hge.</td></tr> <tr> <td>Hist.</td><td>Bronchi → cellular infiltration</td></tr> </table> Character: 6S 1. Sex → ♂ > ♀ 2. Season → winter 3. Socioeconomic → low 4. Small in size, wt & age → 2-4months old 5. Sleep → √√ (3-4 am) 6. Symptoms → no	ext.	Nose → bloody froth, tinged oedema in nostrils	int.	Lung → congestion & pet. hge.	Hist.	Bronchi → cellular infiltration	Definition: Healthy person / 24hrs of terminal illness Causes: 1. CNS 2. CVS 3. Resp. <table> <tr> <th></th><th>1. CNS</th><th>3. Resp.</th></tr> <tr> <td>1-Infection & inflammation</td><td>Meningitis (e.g.)</td><td>Pneumonia (e.g.)</td></tr> <tr> <td>2-Vascular</td><td>Thrombo-embolism (e.g. cerebral)</td><td>Thrombo-embolism (e.g. pulmonary)</td></tr> <tr> <td>3-Tumors</td><td>Brain tumors</td><td>Bronchial carcinoma</td></tr> <tr> <td>4-</td><td>Hge ,e.g. Intra-cerebral</td><td> • Obstruction of larynx • Asthma & Pneumothorax </td></tr> </table> 2. CVS: 1. Vascular → Rheumatic → Syphilitic 2. Congenital heart diseases (e.g. ASD & VSD) 3. Pericardial sac → fibrinous, purulent → haemo-pericardium 4. Myocardium → cardio-myopathy 5. Aorta → aneurysm → Rupture → Internal he 6. Coronaries → obstruction → Angina (Partially occlusion) → Infarction (complete occlusion)		1. CNS	3. Resp.	1-Infection & inflammation	Meningitis (e.g.)	Pneumonia (e.g.)	2-Vascular	Thrombo-embolism (e.g. cerebral)	Thrombo-embolism (e.g. pulmonary)	3-Tumors	Brain tumors	Bronchial carcinoma	4-	Hge ,e.g. Intra-cerebral	• Obstruction of larynx • Asthma & Pneumothorax
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3-Tumors	Brain tumors	Bronchial carcinoma																				
4-	Hge ,e.g. Intra-cerebral	• Obstruction of larynx • Asthma & Pneumothorax																				

3- Death under anesthesia:• Causes:

1. Surgeon
 - Accidental (surgical mistakes) ↗ e.g. Unskilled incision of big BV or aneurysm
 - Prolonged operation (surgical exhaustion or surgical shock)

2. Patient
 - Accident (injury necessitating operation)
 - Pre-existing disease e.g. HF

3. Anesthesia

• Investigations of cases of death under anaesthesia: RAT

1. Report —→ Consent
 → Ask about surgery in details
2. Autopsy —→ Mistake of surgeon (e.g. perforation of the organ)
 → Mistake of patient (e.g. pre-existing disease as infarction)
 → Mistake of anesthesia doctor (e.g. airway obstruction by cotton)
3. Toxicological analysis —→ Alveolar air
 → Lung
 → Brain
 → Blood

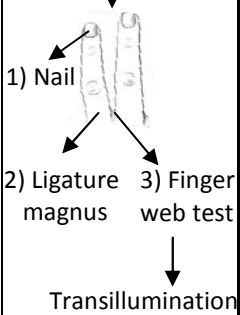
4- Brain death:

1. Definition: ⊖ Electric activity in the brain
2. Types —→ Cortical(physiological)e.g.: cerebral hypoxia, toxic condition, brain injury
 → Brain stem(anatomical) e.g. ICP, cerebral edema, intracerebral hge
 → Total → common
3. Clinical criteria of brain stem death:
 - a. The patient → deeply comatozed
 - b. The patient → maintained on ventilator
 - c. Irreversible structural brain damage

Immediate signs of death: 5

1. Brain death
2. Cessation of circulation
3. Cessation of respiration
4. Primary flaccidity
5. Cadaveric spasm

Immediate signs of death: 5

	Brain death	Cessation of CVS	Cessation of Respiration (study from book)	Muscle
1) Clinically	1-Coma 2-On ventilator 3-irreversible organ damage	1- Palpation 5min → pulselessness 2- Auscultation 5min → absence of heart sounds	1-Inspection 2-Auscultation repeated < 5min	1ry flaccidity & Cadaveric spasm
2) Investigation	EEG + CT scan + Doppler	ECG or oscillogram	Cheyne strokes	
3) Tests (refer to book)	1) Brain stem reflexes lost 1. No corneal reflex 2. No pupil reflex → no respond to light 3. No gag → bronchial stimulation 4. No respiratory movements without ventilator 5. No response to stimulus 6. Oculo-vestibular Absent (caloric test) 7. Oculo_cephalic (doll's eye sign) or Cautelle's sign → present 8. No response on pressure above the eye	1- <u>F</u> lame test 2- <u>F</u> lorescent test (Icard test) 3- <u>F</u> low test 4- <u>F</u> inger test 	1- <u>F</u> luid test (winslow's test) 2- <u>F</u> eather or candle test 3- Mirror test	
Absent ← (Barany's test)				

Written

Organ transplantation:

1. Types of donors
 - Death (cadaver)(within the molecular life)
 - ↳ Brain death
 - Living → sign consent + witness
2. Types of tissue
 - Blood (replaceable)
 - Kidney (paired organ)
 - Eye → illegal (essential for life)

* Scheme *

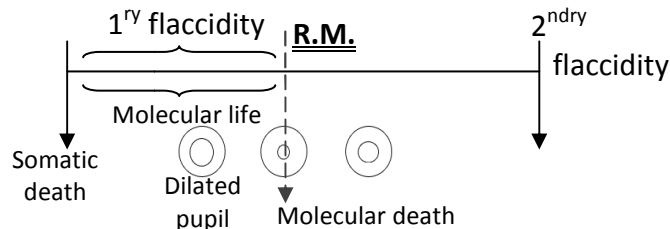
(Follow it in the signs of death)

Death

- 5D {
1. Definition
 2. Due to
 3. Describe → shape
 4. Date → site
 5. D.D.
6. MLI
7. Factors in {
- Cooling
 - R.M.
 - Putrefactions
- } ONLY

Primary flaccidity & contact flattening: (الارتخاء الأولي)

1. Definition: Relaxation (all muscles) + loss of reflexes + respond to electricity



2. Due to: loss of muscles tone

3. Describe: → Site → All muscles

→ Shape

D.D. (only oral)

- 1- Apparent drowned person
- 2- Vagal inhibitory phase
- 3- Epilepsy, Trauma & catalepsy
- 4- Narcosis
- 5- Electrocution
- 6- ttt with ms. relaxant

- 1) Peaceful look:
 - Drop of jaw
 - Drop of urine
 - Dilated pupil
- 2) Contact flattening

3D

Ask these Qs.

Why?
When?
Where?

4. Date: Pair hours → 2 hours after death

5. D.D.: 2nd flaccidity (+ve response of muscles to electric stimuli only with 1st)

6. MLI: Valuable indication of the alternation of position after death

Immediate sign of death**Cadaveric spasm**

(التوتر الرمي)

- Definition: Spasm / Group of voluntary muscles / At time of death
 - Due to: Emotional stress (Nervous tension) → nervous stimulation of muscles
- Hands grasp something in the scene of crime {
1. Suicidal
 2. Homicidal
 3. Accidental drowning

- ❖ It is persistent after death → due to emotional or physical stress immediately before death (it is possibly neurogenic)

- **Describe:** severe muscles contraction $\ominus$ 1^{ry} flaccidity in one group of muscles
- **Date:** Immediate $\ominus$ 1^{ry} flaccidity
- **Site:**
 - Hands
 - Jaw**Mainly**, most of the time
- **D.D:**
 - R.M
 - Heat stiffness
 - Cold stiffness
- **MLI** → Manner of death
 - not cause of death
 - Suicidal
 - Homicidal
 - Accidental



1. Cooling
2. Hypostasis
3. Rigor mortis
4. Body fluid changes
5. Skin & eye changes

← Early signs of death

❖ Body fluids:

C.S.F (Blood)	Vitreous humour (no blood)
1- ↑ K 2- Electrolytes, minerals 3- Lactic acid 4- Amino acid 5- Urea 6- Non-Protein N ₂	1. Ammonia 2. Potassium 3. Succinate dehydrogenase

❖ Cooling: (Not a must it depend on external temp.)

- Definition: Body loses temp. → atmospheric temp.

Conduction Convection Radiation

- Due to:
 - 1- No metabolic process (oxidation) → No heat production
 - 2- Cold external temp

- Describe: → Cold

Chemical thermometer

Rectal Vaginal Abdominal

Sure
sings of
death

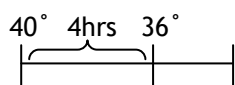
- 21°C
- Progressive fall of temp.

Rate of cooling: (Simpson's formula)

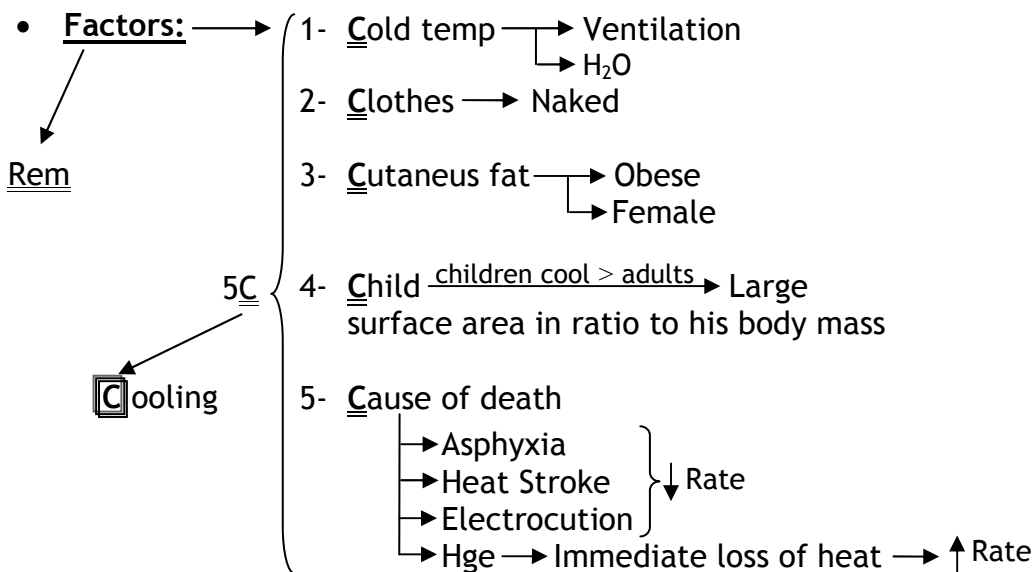
- Date: 1°C/hr
 - (2.5°C/hr → 1st 6 hrs
1.5°C-2°C/hr → 1st 12 hrs)
 - 18 hrs to reach room temp

- D.D: → No

- MLI: → When?? but rare because you must know the temp at the time of death



Forensic Medicine Notes



❖ Blood changes

= Livor mortis = Suggilations
= Cadaveric lividity = Vibices

Hypostasis

→ Fibrinolytics
→ P.M bleeding

N.B.: Asphyxia → دم خفيف

↑CO₂ → endothelial damage → Fibrinolysis

- **Definition:** bloody discoloration & staining of the skin and tissue / Most depending area not subjected to pressure
- **Due to:**
 - Gravitation
 - Stagnation
- **Describe:**
 - Site
 - Supine → back
 - Prone → ventral
 - Hanging → legs
 - Drowning → upper part
 - Shape : appears first as patches which gradually increased & coalesce until it stains the whole dependent areas except the sites of compression which remain pale (contact flattening)

Forensic Medicine Notes

- Date:

1
↓

Appears after 1hr

8
↓

Becomes fixed and complete

- D.D: → Bruises and contusions (Table discussed later in Ch3)
- MLI:
 - 1- Where? → Position of body at the time of death
 - 2- When? → From the extent of hypostasis
 - 3- Why? → Color → idea about cause of death
(cause of death)

- Factors:

(1) Colour	Cause of death
1- Pale blue	→ Normal death
2- Deep blue	→ Asphyxia
3- Red	→ <u>3C</u> → Co → Cyanide → Cold
4- Brown	→ K Chlorate poisoning → Nitrite poisoning
5- Pale	→ Hge

Fluidity Volume

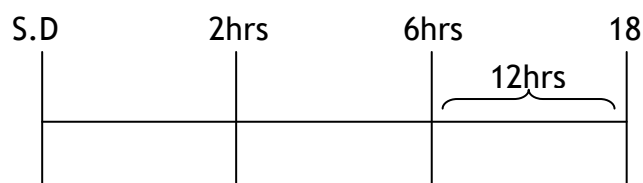
(2) Extent	Cause
↑↑	Asphyxia (Because → ↑CO ₂ → endothelial damage → fibrinolysin → دم خفيف)
↓↓	Hge

❖ Rigor Mortis

- Definition: Rigidity / Voluntary & / After Death
Stiffness / Involuntary
- Due to:
 1. Decrease ATP production
 2. Dehydration
 3. Dehydrated complexed actine & myosine

Chemical reaction ←
- Describe:
 - Site (refere to book)
 - Voluntary (descending order) → Eye lid muscle, tempromandibular joint
 - Involuntary
 - Eye (constricted pupil)
 - Erector pilae (goose skin)
 - Heart
 - Shape → contraction of all muscles
- Date:

$$\begin{array}{ccccccc} \underline{2} & \times & \underline{6} & = & \underline{12} & \xrightarrow{\times 3} & \underline{36} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \text{Starts} & & \text{peak} & & \text{Takes 12} & & \text{completely} \\ \text{after} & & & & \text{more hrs} & & \text{disappears} \\ \text{death} & & & & \text{to start to} & & \\ & & & & \text{disappear} & & \end{array}$$



- MLI: 1- When?
 - Extent
 - Rate of disappearance
- 2- Why?
 - Cause
 - time of onset
 - disappearance
- 3- Where?
 - * sure sign of death

- **Factors:** ATP $\downarrow\downarrow\downarrow$ $\longrightarrow$ Rigor mortis $\uparrow\uparrow\uparrow$

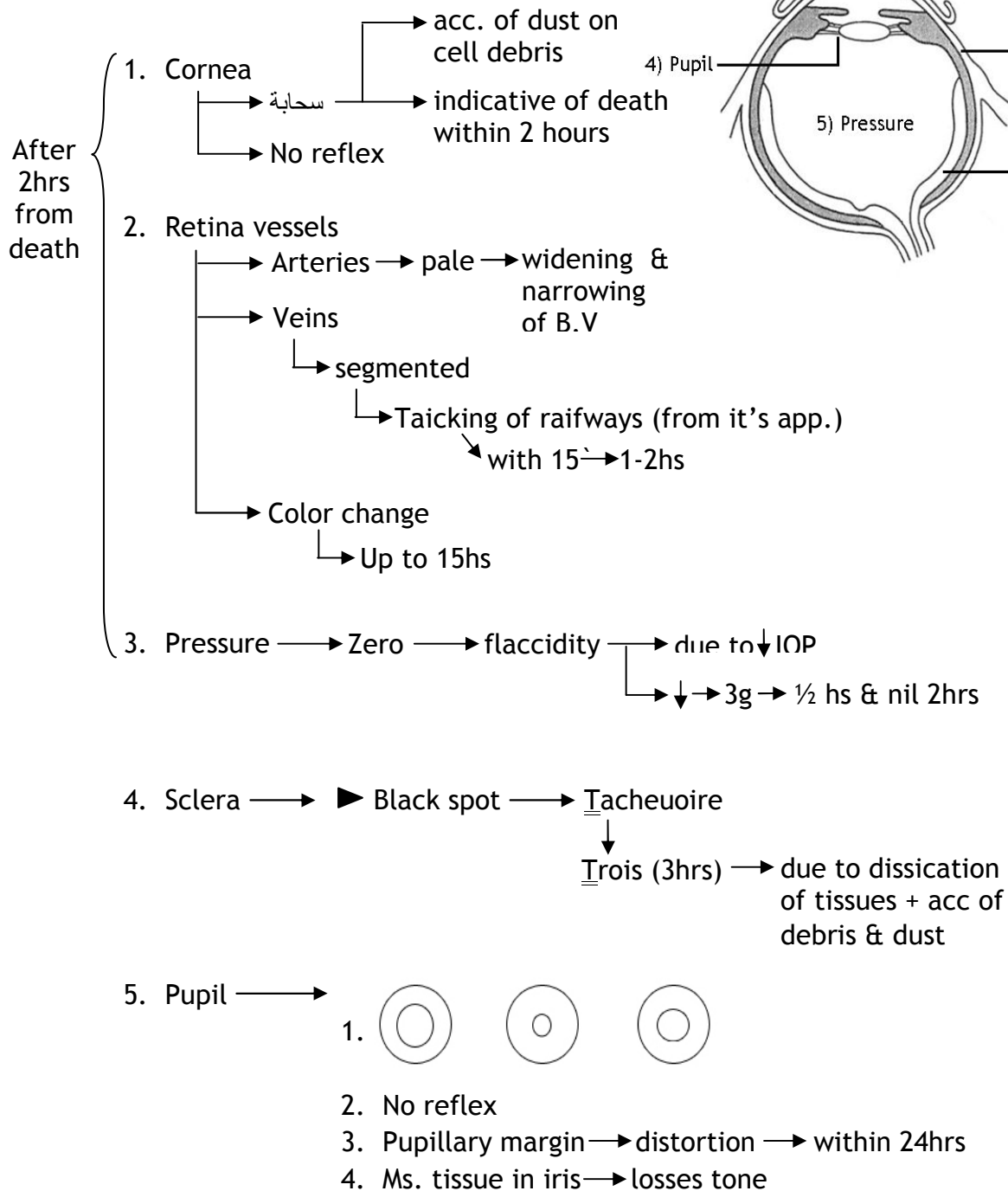
		ATP	R.M.
(1) Ms bulk and age	→ Athlete	↑↑↑	↓↓↓
	→ Emaciated	↓↓↓	↑↑↑
	→ Child	↓↓↓	↑↑↑
(2) Ms activity → Convulsion	→ Asphyxia	↓↓↓	↑↑↑
	→ Electricution		
(3) Temperature	→ Cold	↑↑↑	↓↓↓
	→ Hot	↓↓↓	↑↑↑

❖ Skin and Eyes

- Skin:

- 4 "C" {
- 1. Circulation → Non reactive
 - 2. Color $\xrightarrow{\text{tinted} \rightarrow \text{Cadaveric}}$ Hypostasis
 - 3. Cold & Pale
 - 4. Contraction of erector pilae muscle → Goose fleshing
5. Elasticity

• Eyes: (ساعتين)



- Late changes (late sings of death)

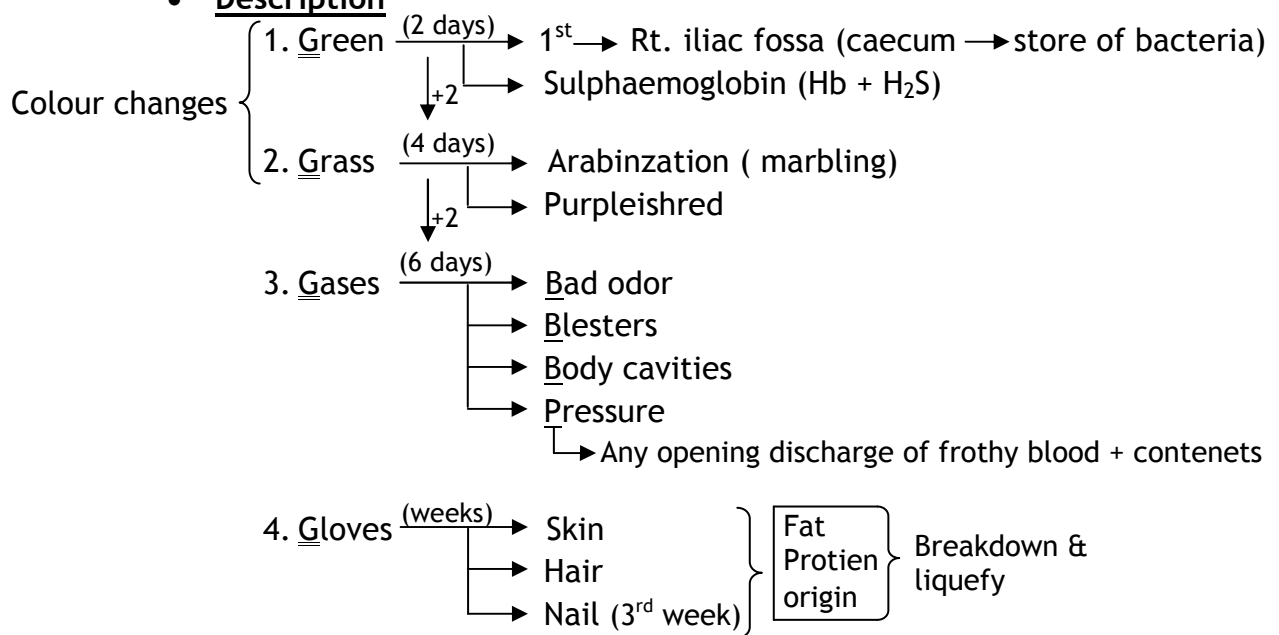
- **Definition** → Break down of tissues

- Due to → 1. Tissue Enz.

2. Bacterial Enz. 

- ### 3. Insects & protozoa & fungi

- Description



- D.D $\longrightarrow$ No

- M.L.I —————> 1. Sure sign of death
2. Time passed since death —————> extent
3. Cause of death —————> rate

- Factors affecting putrefaction : (bacteria)

	Bacteria↑↑↑	Bacteria↓↓↓
1. Temperature	25 - 40	××
2. Air	Air	• Drowning(H₂O) • Sealed coffins.
3. Water	• Drowning after extraction • Oedematous • CHF • Liver, spleen	• Dehydrated (e.g. metallic poisoning) • Hemorrhage • Prostate and uterus (last organs to putrefy)
4. Blood		
5. Organ		
6. Cause of death	Septicaemia Bacteraemia	Metallic poisoning (bactericidal) + dehydration No bacteria (sterile intestine)

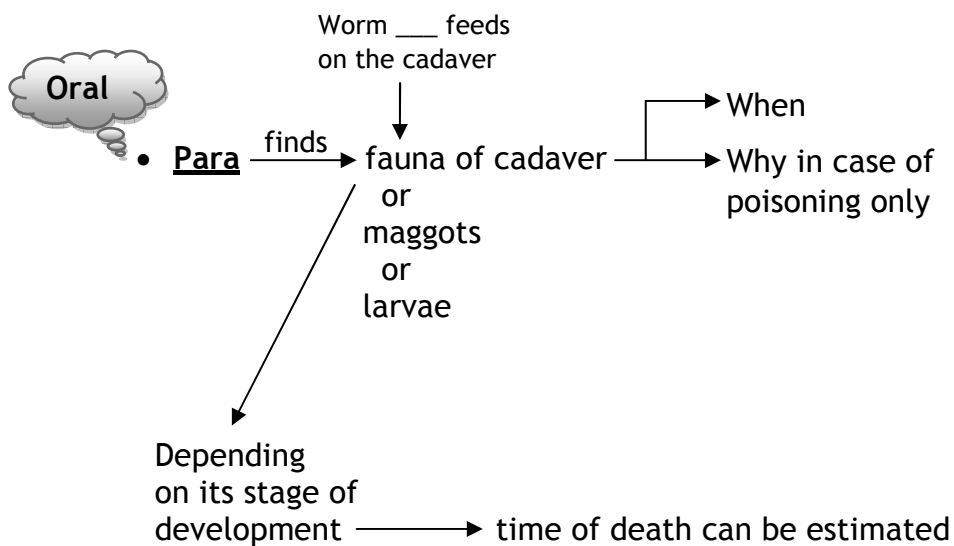
- Special investigations in putrefied body:

1. Bacteriological
2. Biochemical
3. Histopathological
4. Toxicological
5. Changes in hair
6. Changes in bone

Date	→ (3w - 6 month) Adipocere	(3w - 12 month) Mummification	(3day-7day) Maceration → Still birth → Sterile
<u>Definition:</u>	Hydrolysis and hydrogenation of fat.	Dehydrogenation + dessication of body tissues.	Sterile autolysis + intrauterine fetal death.
<u>Cause:</u>	+ H₂O (drowning) - Unsaturated F.A $\xrightarrow{H_2}$ saturated	H₂O (desert) ↓ Inhibits growth of putrefactive organisms.	Tissue enzymes
<u>Describe:</u>	- Waxy - Greasy - White - Heat (inflammable) - Alcohol or ether → dissolves it - Rancid odour - No bacteria and chemical degradation	- Black - Shivelled - No odour - Skin is dry, hard and adherent to the shrunken body.	- Rancid odour - Blisters+lacerated skin - Red brown coloured skin - Spoulding sign - Internal viscera becomes soft, moist, discoloured and the limbs are easily separated from body (exposure to air should be prompt since exposure to air permits the occurrence of putrefactive changes).
<u>Site:</u>	_____ where there is +++ fat e.g. S.C fat of cheeks, breasts, buttocks, abdomen & abd. Internal organs		
<u>MLI:</u>			
1. When?	- From date and texture	- From the extent	- 3 day → 7 day (<u>EXTENT</u>)
2. Why?		- From recognized injuries	- Nullifies infanticide
3. Where?	- Water	- Hot dry atmosphere	Intrauterine fetal death
4. Who?	- Male or female	- Presentation of features → identification	- Intrauterine fetal death
			- ×××

P.M interval• Definition:

Immediate	Early	Late
❖ CNS ❖ CVS ❖ Respiration ❖ Muscles (primary flaccidity) ❖ Cadaveric spasm	1. Cooling 2. Hypostasis 3. Rigor mortis 4. Skin 5. Eye	1) Putrefaction 2) Adipocere 3) Mummification 4) Maceration



Wounds

Classification:

Legal			Medicolegal	
	Permanent infirmity	No. of days for healing	<u>Mechanical injury</u> <u>Sharp</u> → Stab, Cut (Incised), Firearm <u>Blunt</u> → Abrasions, Bruises (Contusions), Contused <u>Thermal injury</u> 1) Dry → burn 2) Moist → scald مسلوق 3) Electricity → Electrocutation 4) Chemical → corrosive 5) Radiation → ionization, Non-ionization	
1) Simple	XX	<21		
2) Dangerous	✓ + X -	>21		
3) Fatal	* Dead*	*Dead*		

N.B:

Permanent infirmity = عاهة مستديمة

• loss of functioning organ or loss of function in this organ

Factors affecting nature & extent of wounds:

Reading

1)

a) Instrument:

Sharp	Localized space	damage ↑↑
Blunt	Wide surface	damage ↓↓
Plastic	Wide surface	„ „

b) $K.E \rightarrow \frac{1}{2} MV^2 \rightarrow$ so velocity is more important than the mass

c) Condition of K.E → Striking mobilize body → less damage

→ Striking immobilized body → more damage

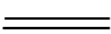
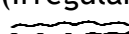
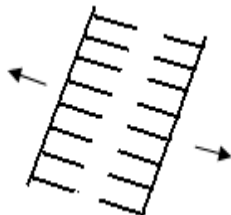
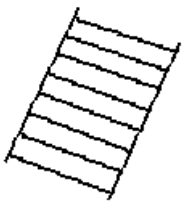
d) Factor which ↑ period of time over which energy is discharged → ↓ destructive effect of the blow

- 2) Tissues: { Bone > than
 Muscle (great elasticity & plasticity)
 Skin → Resist to traction force
 Subcutaneous → Plastic
 Joints → Movement governed by muscle action
 Gases & fluids → incompressible

Scheme of wound:

- 1) Definition & causal instrument
- 2) Types & examples
- 3) Characters & MLI

	Cut = incised	Contused = lacerated متهتكة
1) Def.	Wound due to drawing the edge of sharp object on the skin e.g. knife, razor, glass	Lacerated or destroy → Grinding + compression
2) C.I	- Sharp instrument - Cut → skin & underlying tissue	Heavy blunt instrument → Car, Bar, Tar (ground)
3) E.g.	- Cut throat - Cut wrist	- Perineal tear → delivery - Scalp → stick
4) Types	1) <u>Hesitation marks</u> : (Suicidal) Hesitative = Experimental 3S { * <u>S</u> uperficial * <u>S</u> mall * <u>S</u> eparate * <u>B</u> eginning 2) <u>Defensive wound</u> : - <u>Site</u> { In hand & forearm Web of thumb Thigh <u>MLI</u> : a) Homicidal b) Not taken by surprise c) Conscious d) Partially mobile 3) <u>Fabricated wounds</u> : - <u>Self inflicted</u> not suicidal	Rem. <u>FCA</u> 1) <u>F</u> lap (torn) → <u>F</u> actory 2) <u>C</u> rush → <u>C</u> ar 3) <u>A</u> vulsion → <u>ق</u> لع → by grinding & compression 4) Cut lacerated by sharp end of stone

Oral	- Aim: - accuse an enemy - Escape from military ser - Escape from work in pris - Allege from bad ttt by p - Rape - Characters: CCSS <u>C</u>ircumstantial evidence <u>C</u>lothes → No tear <u>S</u>hape → superficial - Parallel lines <u>S</u>ite → safe area - Reach the hand	
5) Characters a) <u>Skin</u>: ○ Abrasion & Bruises: b) <u>Hair</u>: c) <u>Blood Vessels</u>: ○ Healing:	More long than deep - <u>Shape</u>: *<u>Edge</u>: regular & clean  (Irregular)  except: <u>W</u>  <u>W</u>  - <u>Object</u>: <u>Weapon</u> <u>Wrinkled area</u> - e.g.: -Broken glass -Axilla - <u>Surrounded By</u>: XXXXXX Absent - Sharply cut  - Cut → Free external bleeding No infection → rapid healing  - By 1st union	- <u>Shape</u>: *<u>Edge</u>: irregular  except: - Scalp - Chin of tibia - Because skin is stretched on the bone - <u>Abrasion & Bruises</u> - Crushed tip of hair  - Crushed → No bleeding (Blood clots) → infection → Slow healing  - By 2nd union → thick scar
6) Tissues ○ Sepsis	- No bridging - Gapping  *Less "minimal tissue destruction"	- Yes bridging - No gapping  *More "↑ tissue destruction"

7) AM & PM	AM	PM	AM	PM
	1) N.E - Vital tissue reaction (Healing & sepsis)	XXXX	1) N.E - Vital tissue reaction (Healing & sepsis)	XXX
	2) M.P leucocytic infiltration	XXXX	2) M.P leucocytic infiltration	XXX
	3) Gapping	XXX	3) Bruises	XXX
	4) Bleeding	XXX		
10) <u>Age</u> <u>One</u> → <u>Two</u> → <u>Five</u> → 10 days → 3 wks → 3 ms. → 6 ms. →	From healing by 1ry union <u>O</u> edema + Blood clot (Red swollen edge) <u>T</u> ree of blood vessels (Growth of new) <u>F</u> ibrosis of blood vessels (Organization of blood clot) Complete healing by 1ry union (Intention) Red scar Brown scar Pale white scar May be invisible, sub skin, avascular scar		NO AGING	
11)Shape	Linear or spindle shape			
12)Complicat-ion	Complicated by hge. & laceration of internal organs			
13)Sepsis	Minimal contamination & foreign Bodies → less liability to sepsis.			

	Abrasions = scratches سحجات	Bruises = contusions كدمات
1) <u>Definition</u>	* superficial e.g. cuticle ↓ serum ↓ - scar ↓ scab	* Extravasations of blood in tissues space (between blood vessel & intact skin) due to rupture of blood vessel
2) <u>Instrument</u>	Blunt e.g. stick or ligature	Blunt e.g. stick or ligature
3) <u>Examples</u>	- Bite marks - Nail marks - Ligature marks	- Bite marks - Nail marks - Ligature marks
4) <u>Types</u>	a) Pressure (patterned) = perpendicular force b) Sliding (friction) = dragging → force is tangential to the surface of skin c) Crushing (impact) → force is vertically applied to the skin	a) superficial b) Deep > 48 hrs. → Blood appears after > 48 hrs. to appear Superficial. ➤ Need 2 nd Examination.
5) <u>MLI Rem. (TEN SAD)</u> 1) <u>Type</u> 2) <u>Edge</u> 3) <u>No.</u> 4) <u>Site</u> <u>Sort of crime:</u> - Mouth & nose - Neck - Mouth + nose + wrist + thigh + Female	a) Pressure b) Dragging ↑↑ → Sign of struggle & resistance (Homicidal) - Sort of crime - Smothering - Throttling - Strangulation - Hanging - Rape	a) Superficial b) Deep ↑↑ → Sign of struggle & resistance (Homicidal) - Sort of crime - The same + Site N.B: May be in Another Site → Due to gravity & Ms. Attachment e.g. Scalp (forehead) → bruises in eye lid (Black eye) 

6) Shape	<table><tr><th>Shape</th><th>Shape of Cl.</th><th>Assailant</th></tr><tr><td>1) </td><td>Finger nail</td><td>✓ ✓</td></tr><tr><td>2) </td><td>Human bite</td><td>✓ ✓</td></tr><tr><td>3) </td><td>Animal bite</td><td>✓ ✓</td></tr><tr><td>4) </td><td>Ligature mark</td><td>✓ ✓</td></tr><tr><td>5) </td><td>Car</td><td>✓ ✓</td></tr></table>	Shape	Shape of Cl.	Assailant	1) 	Finger nail	✓ ✓	2) 	Human bite	✓ ✓	3) 	Animal bite	✓ ✓	4) 	Ligature mark	✓ ✓	5) 	Car	✓ ✓	<table><tr><td>1) Whip</td><td></td><td>Curved</td></tr><tr><td>2) Stick</td><td></td><td>Elongated</td></tr><tr><td>3) Finger tip</td><td></td><td>Round discord Shape</td></tr></table>	1) Whip		Curved	2) Stick		Elongated	3) Finger tip		Round discord Shape
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7) Age/Healing	<u>days</u> <u>2 3</u> <u>1-2</u> <u>weeks</u> Soft reddish Scab dry Brownish red scab Weak scab (falls) Form complete epithelizat. <table><tr><th>AM</th><th>PM</th></tr><tr><td>1) N.E</td><td>Similar as before</td></tr><tr><td>2) M.P</td><td>Similar as before</td></tr><tr><td>3) Redness</td><td>XXX</td></tr><tr><td>4) Bruises</td><td>Absent</td></tr></table>	AM	PM	1) N.E	Similar as before	2) M.P	Similar as before	3) Redness	XXX	4) Bruises	Absent	1st 2 days 2-3 2-3 <u>Red</u> → oxy Hb ↓ 2-3 days <u>Blue</u> → reduced Hb ↓ 2-3 days <u>Green</u> → Biliverdin ↓ 2-3 days <u>Yellow</u> → Bilirubin - color fade 1-4 weeks → depends on Site, size, depth. <table><tr><th>AM</th><th>PM</th></tr><tr><td>1) V.T.R</td><td>XXX</td></tr><tr><td>2) Healing → color changes present</td><td>XXX No color changes</td></tr><tr><td>3) Redness</td><td>XXX</td></tr><tr><td>4) Big size</td><td>Small size</td></tr></table>	AM	PM	1) V.T.R	XXX	2) Healing → color changes present	XXX No color changes	3) Redness	XXX	4) Big size	Small size							
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8) MLI	-Differentiate cut (No abrasions) from contused -Differentiate Bruises from hypostasis → Since they are present around Bruises & not hypostasis.	Differentiate cut (No abrasions) from contused DD. from hypostasis																											

9) Factors affecting

Factors affecting size of bruises: 5B

- 1) Blow (severity)
- 2) Pericardial death (onset of death)
- 3) Blood disease
- 4) Person { Age { Young
Elderly
Sex → Female
Bruises
More delicate ↑↑ fatty tissue
- 5) Place:
 - a) Tough → Fatty fibrous tissue (palm & sole)
 - b) Vascular → Bl.vs (eye lid & labia)
 - c) Underlying → Bone (severe bruises)
Ms. (Minimal bruises)

10) DD.

4B

- 1) Bites (fish, insects...etc)
- 2) Babies (excoriation) "Napkin dermatitis"
- 3) Putrefaction
- 4) Bed sores

Postmortem denudation →
Occur to skin in putrefaction →
Row area of dermis simulating
Abrasions when dried.

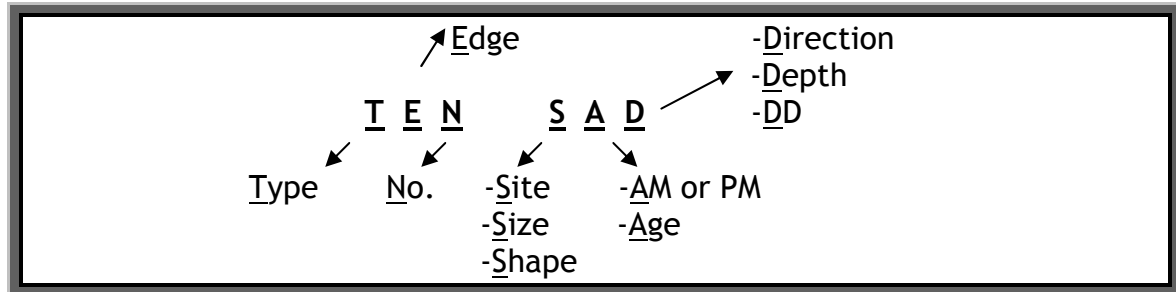
- 1) Pathological { Purpura
Hemophilia
Liver cirrhosis
Alcoholism
Fulminating meningococcal infection
- 2) Hypostasis

4D

v.v.imp.

	Bruise	Hypostasis
1) <u>Def.</u>	- Extra-vascular	- Intra-vascular
2) <u>Due to</u>	- Trauma	- Normal death
3) <u>Date</u>	- AM or PM	- PM
4) <u>Describe</u>	1) Color changes 2) Raised 3) Well defined 4) Abrasions 5) Not washed 6) leucocytic infiltration	1) One color 2) Not raised 3) ill-defined 4) No abrasions 5) washable 6) No blood cells

♦ N.B:
Talk about:



Stab wounds

1-Definition:

- forcing
- sharp pointed object into body e.g. dagger or knife

2-examples and types:

- chest
- abdomen
- back

3-Types:

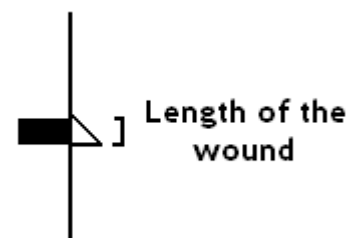
- Transfixing → penetrate 2 corresponding surfaces e.g. limb
Or → connect 2 organs
- Puncture: not sharp edged instrument but pointed e.g. Iron bar-poker

4- DD :

- firearm injuries
- cut wound

5- Characters or medico legal importance:(TENSAD):

- 1- **Type:** -transfixing
-puncture
- 2- **Edge:** everted due to withdrawal
- 3- **Number:** homicidal
- 4- **Site:** back (homicidal)
- 5- **Shape:** -triangular (single sharp bladed e.g. Knife)
-fusiform (double sharp bladed e.g. dagger)
- 6- **Size:** length of the wound = Breadth of the weapon
But may be:
 - widened during withdrawal
 - or reduced due to healing of the skin



N.B.: use TENSAD in abrasions, bruises and stab

6-Direction:

- dissection (in dead body)
- Dye → x-ray (in living)

7- Depth: →

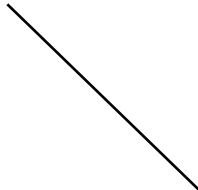
- Deeper than longer
- injury to internal organs→Hemorrhage
→Infection → sepsis
- tip of broken weapon inside wound→ identify weapon→identify assailant
- length of weapon=depth of the wound

Except in:

- Chest area : not all the weapon enter due to opposition by rib cage
- Abdomen: depth is more than the length of the weapon due to compression of the abdomen during penetration

▪ in any crime there are the following:
victim-assailant-wound –weapon–circumstantial evidence

Forensic Medicine Notes

	Suicidal	Homicidal	Accidental
1-Circumstantial evidence(5D) 1- <u>D</u> oor 2- <u>D</u> isturbance of furniture 3- <u>D</u> epression 4- <u>D</u> aily note 5- <u>D</u> actylography	-✓ -X -✓ -✓ -Victim	-X -✓ -Threatening -Any belong to ass -Assailant	
2-Victim(6S) 1- <u>S</u> ex 2- <u>S</u> ite of body 3- <u>S</u> pasm (cadaveric) 4- <u>S</u> econd injuries 5- <u>S</u> ign of struggle 6- <u>S</u> ite of blood (Cut Throat)	-♂ -In front of Mirror -Weapon -Previous attempts -Absent -Ventral aspect	-♂ or ♀ -Any site -Belong to assail. -Defensive wound -Present -Dorsal aspect	
3-Assailant(3B) 1- <u>B</u> uttons and clothes 2- <u>B</u> lood groups and prints 3- <u>B</u> ody		-Tears -Compare with those in the scene of crime -Abrasion & bruise	
4- Weapon(3w) 1- <u>W</u> hich type 2- <u>W</u> here 3- <u>W</u> itness	-Any Type -Present -Finger prints of victim	-Sharp -Absent -FP of the assailant	
5-Wound:TENSAD • Type • Edge • Number • Site • Direction & Depth → Direction → Depth	-Cut or stab never contused _____ -Single -cut throat -cut wrist -High in neck above thyroid cartilage -Oblique -Superficial → deep → sup. (Tailing)	-Any type _____ -Multiple -Anywhere -Low below thyroid cartilage -Transverse -Deep	

Early	Late: 4S+DIC
1- Shock 2- Embolism 	1- <u>S</u>epsis: → infection → intravenous thrombosis → pulmonary embolism → septicemia, pyemia → peritonitis, pericarditis 2- <u>S</u>urgical interference → <u>S</u>uccess 3- <u>S</u>uprarenal hemorrhage { -Car Accident → Impact loins - few days after trauma(2-20) 4- <u>S</u>yndrome: A. <u>C</u>rush syndrome: -Muscle → Myoglobin } -BL vessel → HB } ↓ Obstruction of renal tubules Acute Renal failure ← 5- <u>DIC</u>(Disseminated Intravascular Coagulation) <u>D</u> → <u>D</u>amage to vessels <u>I</u> → <u>I</u>mmobilization & stasis <u>C</u> → <u>C</u>oagulation factors & <u>C</u>ell factors B. <u>ARDS</u>: adult respiratory distress syndrome - Alveolar damage progress to Resp. Failure - Renal & CVS failure

Early causes of death (Shock)

	1ry Neurogenic shock			2ry Haematogenic shock
	<u>Vagal shock</u>	<u>Sympathetic shock</u>	<u>Hemorrhagic shock</u>	<u>Hematogenic shock</u>
1-causes	<u>Vagal area</u> Tragus, carotid sinus, larynx, epigastrium, Abdomen, external genitalia -Very bad news Sudden psychic shock -Application of catheter -Severe cervical dilatation	Severe pain	<i>The Commonest cause of Death.</i> -Def. blood loss -Types: (refer to book) 1-ext. 2L (1/3 BV) 2-Int. -pericardium 200cc (cardiac tamponade) -pleura 100cc -peritoneum 500cc -brain 10-20cc 1-1ry immediately after wound 2-reactionary : recovery → ↑ BP Several hours to 1 day 3-2ry: sepsis or infection (bacteria → erosion of vessel wall) 10 th -16 th day	- trauma - surgical ↓ total blood vol.. a- fluid loss b- toxic absorption histamine-like substance in injured tissues
2-C/P	BP Temp. ↓↓↓↓ Resp. pulse	↑↑↑↑	BP ↓↓↓ Temp. ↓↓↓ Resp.: rapid & shallow Pulse: rapid & weak	BP ↓↓↓ Temp ↓↓↓ Resp.: rapid & shallow Pulse: rapid & weak

	1ry Neurogenic shock			2ry Haematogenic shock
	Vagal shock	Sympathetic shock	Hemorrhagic shock	Hematogenic shock
3- mech. & cause of death	Vagus → RCI → vagal escape phenomenon ➤ This can help person to survive from death	Adrenaline ↓ ventricular fibrillation ↓ HF ↙ ↘ Lt side RT side ↓ ↓ Congested lung Congested organs -diseased heart as angina & infarction (ppl with normal healthy heart can survive)	↓ blood in circulation	Histamine release + ↓ BV → Generalized loss of Cap. Tone ↓ VD + ↑ capillary permeability ↓ ↓↓ venous return → CO ↓ HF ↓ Tissue anoxia ↑ Capillary atony & permeability ↓ Vicious circulation ↓ HF
4- PMP	1- pale organs 2- empty vessels	1- congested organ 2- congested lung 3- diseased heart	<u>External</u> -Pale body -pale Hypostasis -blood on ground & clothes	<u>Internal</u> -Pale organs -sub-endocardial Hge (explain) -contracted spleen → corrugated capsule -blood in body cavities
				-Effusion -Petechial hemorrhage -Dilatation of capillaries (engorgement)

Subendocardial hemorrhage occurs in hemorrhagic shock because of forceful contraction of the heart with low blood volume in the circulation → rupturing of the walls of the heart together → injury → subendocardial hemorrhage

Embolism (Early cause of death)

1- Air embolism:

	Venous(pulmonary)	Arterial(coronary ,cerebral)
▪ Cause	1- Criminal abortion 2- IV infusion 3- Cut throat 4- Tubal insufflations & tubal patency test	1- Bad doctor (artificial Pneumothorax) 2- Bad diver: Ascent & Descent 3- Bad person: stab connecting bronchus to pulmonary artery
▪ Postmortem picture	1- X-Ray: Air bubbles in RT side of heart, pulmonary arteries 2- H2O	1-X-Ray 2-H2O 3-Retinal, Coronary, Cerebral arteries → <u>Beaded</u>
▪ Cause of death	Venous air embolism → stoppage of pulmonary circulation because air bubbles are large & block flow of blood through minute pulmonary veins & venuoles	Occlusion of coronary & cerebral arteries

2- Fat embolism:

FAT

Fracture of long bones
Ampoules of fatty dye
Trauma to fatty tissue
Thermal injury

Postmortem picture:

- 1-Stain lung section: Osmic acid & Sudan III → to stain fat cells
- 2-Globules of liquid fat in:
 - RT side of the heart
 - Pulmonary artery
 - Arterioles
- 3- Brain- Heart- Kidney → Fat embolism

Injuries of internal organs

	Heart	Lung	Abdomen	Neck																		
1-Rupture	a- <u>Traumatic</u> TTBB <u>Tar</u> <u>Break</u> <u>Tyre</u> <u>Blow</u> b- <u>Pathological</u> 1-Infarction→ rupture 2- Aneurysm→ rupture 3- Extensive fatty degeneration of its muscles 4- Myocardial fibrosis	→ b-<u>Pathological</u> xxx	→ b-<u>Pathological</u> ✓ Hollow organs: Peptic ulcer- Typhoid ✓ Solid organs: Bilharziasis -Malaria Duodenum(BEB) <table><tr><td></td><td>Traum -atic</td><td>Pathol- ogy</td></tr><tr><td>History</td><td>✓</td><td>✓</td></tr><tr><td>Bruises</td><td>✓</td><td>x</td></tr><tr><td>Edge</td><td>Irreg.</td><td>regular</td></tr><tr><td>Bulging</td><td>✓</td><td>x</td></tr><tr><td>GIT disease</td><td>healthy mucosa</td><td>diseased mucosa</td></tr></table>		Traum -atic	Pathol- ogy	History	✓	✓	Bruises	✓	x	Edge	Irreg.	regular	Bulging	✓	x	GIT disease	healthy mucosa	diseased mucosa	
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GIT disease	healthy mucosa	diseased mucosa																				
2-Blow	RVI	Hypostatic pneumonia (inf. Due to stasis of blood)	Vagal shock	1-<u>All types of wounds except:</u> -Contused -Cut is the commenst 2-<u>Causes of</u>																		

3-Perforation (stab)	Atrium > ventricle ↓ Thin wall Thick wall + Valve like mech. ↓ Hge (RT > LT) ↓ Thinner wall	Wide Type of weapon 	1- Injury of internal organ 2- Internal bleeding 3- Infection	death: a. Carotid sinus →vagal shock b. Carotid artery→ He. c. Internal jugular vein→air embolism d. Trachea→ choking e. Lung→ Pneumonia
4-Bleeding	-Subendocardial hge (vvvimp): (5B) 1- Blow→ rupture 2- Blood disease→ ↑capillary permeability 3- Blood loss(Hge)→ hypovolemia 4- Burns 5- Poisoning (Pb& As) 4, 5 →Toxic capillaritis.	- Subplueral Hge: **Tardieu spots	- Stab wounds	3- Homicidal/ Suicidal/ Accidental Similar to the table see before

Head Injury

(Most imp chapter in forensic oral & written)

1) Scalp injuries

Types
Complications

➤ Types:

a. Bruises (contusions) → blunt instrument

Skin → subcutaneous

C.T

Aponeurosis → sub aponeurotic

Loose areolar

Perosteum

b. Cut

By heavy sharp
Object
E.g. fass, axe

c. Contused (commonest)

homicidal
accidental

*similar in

- shape → regular edges
- severe bleeding

*Differentiate between them by

Gapping
Abrasion and bruises
Hair



Cut



Contused

d. Firearm wounds

➤ Complications of scalp injuries:

- 1) Hge (due to rich blood supply to scalp)
- 2) Erysipelas → skin inf. By strept
- 3) tetanus
- 4) Infection
 - Meningitis
 - Encephalitis
 - Brain abscess → opp. The injury
 - Cavernous sinus thrombosis → rare → affect longitudinal and lateral sinus

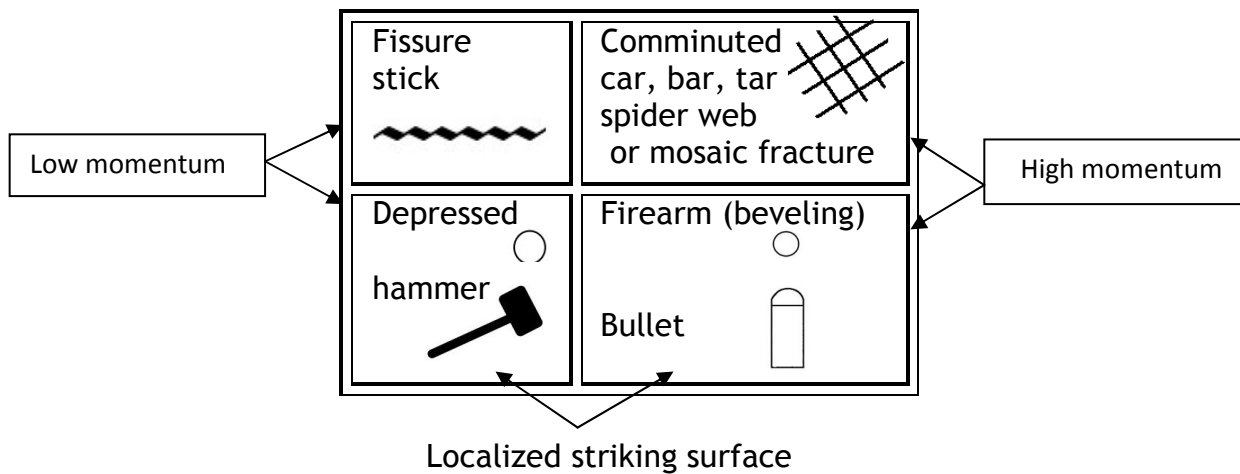
Meningitis

	(Forensic medicine) Traumatic	(ENT) Otitis media	(Community medicine) Meningococcal
History	Head injury	Otitis media	Neck rigidity
Bacteria	Non specific as Staph. Or strept.	Non-specific	Gram -ve
Pus site	Opp. The lesion in the scalp	Temporal	Basal (Circle of will's at the base of the brain or due to gravity)

2) SKULL

- 1) Factors affecting skull fracture.
- 2) Types
- 3) Healing and sepsis.

1) Factors affecting (governing) skull fracture:

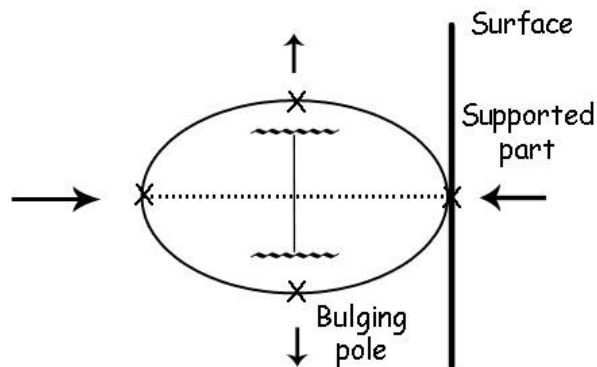


❖ Cut fracture:

- Fiss, axe (sharp edged)

♦ Factors affecting:

- اللي بيضرب
 - اللي بيضرب (المضروب)
 - اللي بيضرب
 - 1. Blunt or sharp
 - Blunt
 - fissure
 - comminuted
 - Sharp
 - depressed
 - Firearm
 - 2. Size of striking surface
 - 3. Momentum = K.E = $\frac{1}{2} mv^2$
 - اللي بيضرب (المضروب)
 - Skull
 - supported → Polar fracture
 - Not supported
- info. From table

❖ Polar fracture (3B)**Polar fracture**

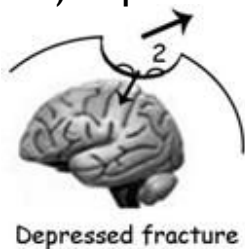
1. Bulging poles of the skull
2. Bisect
3. Parallel to the direction of striking force/axis of compression

2) Types of skull fractures:**1) Comminuted fracture:**

- a) Results from: } previous page
- b) Composed of: }

2) Cut:

- a) Results from:
 - Linear+ loss of bone (regular, straight)
 - Sharply (moderate) cut edges
 - Knife
 - Axe (triangular in shape if strike with axe angle, the base of the triangle is nearer to the assailant)
 - Fissure
 -

3) Depressed fracture:

Depressed fracture

- a) Results from: (as before)
- b) Draw (signature fracture take the shape of the striking surface)
- c) Driven inward in part of the contour which is nearer to the assailant
- d) Drop (in infants) due to high elasticity of skull bone
(POND FRACTURE) no fracture only concave depression

4) Compound fracture:

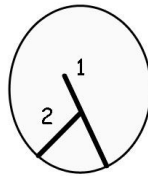
- Comminuted depressed fracture

ALL features of depressed fracture + some comminution in the base.

Depressed fracture with fragmentation of the depressed piece of bone.

5) Fissure fracture:

- Starts from point of trauma and extends parallel to the direction of the blow.
- 2 fissures meet, the complete one occurs before the interrupted.

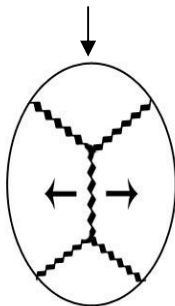


DPT

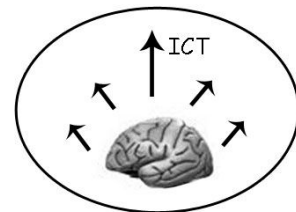
Diastatic fracture

Polar (as before)

thermal fracture



Fissure in supported skull



Thermal fracture

Diastatic fracture

- Thermal fracture
- Tar (ring fracture)

Fall from height on feet

Fracture in sutures occur in non-united sutures of children.

Ring fracture around Foramen magnum

N.B D.D. Thermal (natural) and Traumatic (homicidal) followed by burning

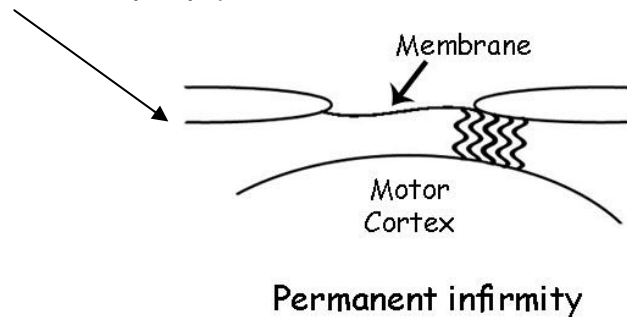
	Thermal (Acc.)	Traumatic followed by burning
1) Scalp wound	حرق ← كسر X	كسر ← حرق ✓
2) Skull fracture	fissure	Any type
3) Extradural hematoma	small	big
4) Brain	Small, shrunken, thin gyri and wide sulci	Not shrunken oedematous
5) P.M. or A.M.	p.m picture of burn	P.M

3) Healing and sepsis:

- 1) Fissure → 3 months (completely unit)
 → If there is necrotic tissue preventing union → another 3 ms
 → edges are smooth → bone ebernation or ivory formation

2) Skull defects: as trephine operation

- 1- Bone vertex: Never fills with bone, But fibrous membrane being membranous in origin (permanent infirmity)
- 2- Permanent infirmity:
- Infection
 - weather
 - Trauma
 - Jacksonian epilepsy
- 3- start 3 months
 ↓
 complete memb. formation
Tissue → Twelve months



- 4) Sepsis: → Bone erosion → involving outer, inner or both tables of skull
 (4-6) Six weeks to develop
 Its presence denotes that the cause of death is probably
 "Septic intracranial complication" → Meningitis
 → Encephalitis
 → Brain abscess
 → Cavernous sinus thrombosis

3) Brain injuries:

1. Cutting/Lacerations:

- Occurs usually in comminuted and depressed fractures and firearm injuries
- Rapid or immediate death
- Majority of cases → no ttt → Death

2. Concussion

3. Compression

Concussion	Compression
1- Def.	1- Def
2- Mechanism	2- Mechanism
3- C/P	3- C/P
4- Fate	4- Cause of death
5- ttt	5- ttt
6- MLI	6- Causes

Concussion

❖ **Def. :**

Sudden transient loss of consciousness after head injury → enter state of surgical shock → severity of which is influence rate of or failure of recovery

OR Temporary arrest of brain stem functions.

❖ **Mechanism:**

Vibration wave affecting brain stem reticular formation

OR

Diffuse neuronal injury → only functional abnormality of submicroscopical neuronal dimensions of nerve cells and their connections

❖ **Clinical pic. of concussion:**

Signs and symptoms	Neurological	Investigation
1) <u>V</u> ibration → Loss of consciousness (Sudden and transient)	No signs of lateralization 1. Pupil (equal) normal In severe cases slightly dilated. 2. Motor power ↓↓↓ (General flaccidity) 3. Reflex ↓↓↓ Last to disappear and first to reappear → corneal and then sphincter	EEG diffuse changes
2) <u>V</u> omiting +ve or -ve Common and may cause suffocation		
3) <u>V</u> ital signs: (signs of shock) • BP ↓ • Pulse rapid and weak • Temp. ↓ • Resp. → Rapid and shallow		

❖ **Fate:**

1) Complete recovery:

- No organic structural damage
- Regains consciousness
- Complains of headache, amnesia, restlessness and returns normal

2) Post-concussion (PC) syndrome: (remains few days)C/P:

- Headache
- Drowsiness
- Irritability

Cause:

Cerebral oedema

MLI

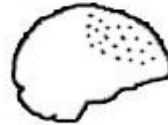
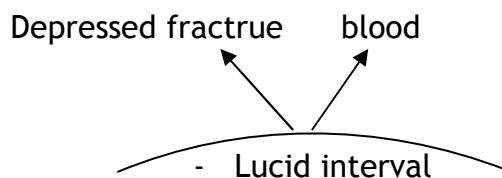
Fabricated

3) Fatal concussion

Death due to arrest of Resp. and CVS functions

The cause is unknown (Temporary arrest → permanent)

PMP → pet. Hge and congestion

Petechial
Hge

4) Concussion → compression
+ lucid interval

➤ lucid interval:**1- Definition**

Period of consciousness between unconsciousness of concussion and unconsciousness of compression .

2- Time interval

Secs → 1 week (as the he has to strip the Dura from the skull → brain compression)

3- Amount of blood → 150-160 ml.

4- Mechanism

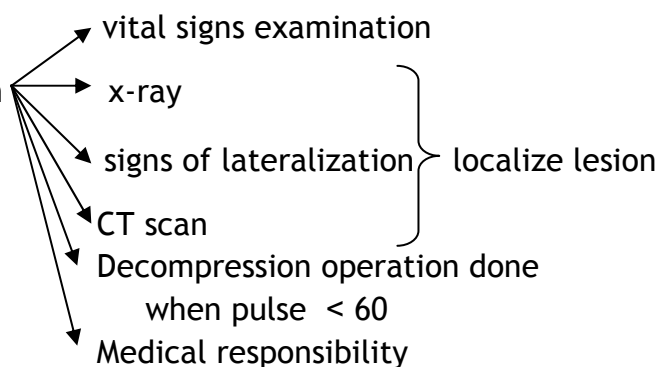
concussion	Lucid interval	compression
Bl.V → torn Bp → ↓↓	Bl.V → torn BP → normal Bleeding ↓ Stripping of the Dura → hematoma	Big hematoma

5- MLI Of concussion → compression with lucid interval

1- Name of the assailant

2- Defense

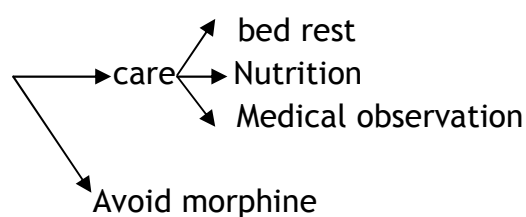
3- 48 hrs Hospitalization

♦ Treatment of concussion

1- Hospitalization

2- Investigation

3- Conservative



Masks signs of lateralization
In the pupil

• MLI of concussion → compression without lucid interval:

1- Negligence (Doctor) → medical responsibility

2- Not witness (patient) → due to retrograde amnesia for events prior to injury

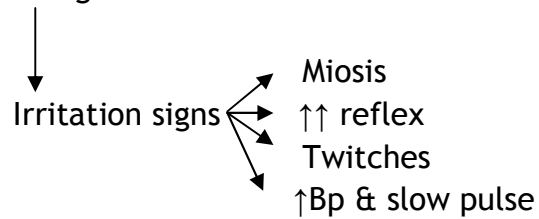
Compression

❖ **Def. :** state of ↑ intra cranial tension

❖ **Mechanism:**

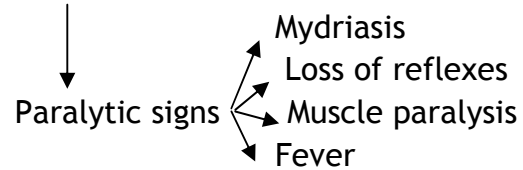
1- Stage of stimulation (irritation)

↑ ICT → close veins → congestion & edema



2- Stage of paralysis :

↑↑ ICT → close arteries → ischemia



Signs & symptoms	Signs of local neurological affection		Investigations
	Signs of lateralization		
3 V 1- <u>V</u>ibration → loss of consciousness → gradual 2- <u>V</u>omiting { Projectile + headache + Papilloedema + conjugate deviation of the globe . 3- <u>V</u>ital signs: BP → ↑↑↑ TEMP → ↑ → cerebral fever PULSE → ↓ → slow full RESP → slow , deep	1-Pupil (unequal) Ipsilateral miosis followed by the other side 2-motor power (contralateral side due to extrapyramidal decussation) 3- reflexes (contralateral side)	↑↑↑↑ ○ <i>Contraction</i> ↑↑ ↑↑ ↓↓↓↓ ○ Paralysis ↓ Dilatation ↓↓ ↓↓	EEG

```
graph TD; A[Herniation of] --> B[Cerebellum]; A --> C[Temporal lobe]; B --> D[Through foramen magnum  
(tonsillar herniation)]; C --> E[Through tentorial opening  
(Tentorial or uncal herniation)]; B --- F[medulla is compressed against the edge of  
the foramen magnum]; C --- F; F --> G[ischemic necrosis → central asphyxia];
```

The diagram illustrates the consequences of brain herniation. It starts with 'Herniation of', which branches into 'Cerebellum' and 'Temporal lobe'. 'Cerebellum' leads to 'Through foramen magnum (tonsillar herniation)'. 'Temporal lobe' leads to 'Through tentorial opening (Tentorial or uncal herniation)'. A bracket groups 'Cerebellum' and 'Temporal lobe', leading to 'medulla is compressed against the edge of the foramen magnum', which then leads to 'ischemic necrosis → central asphyxia'.

❖ **Treatment of compression:**

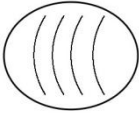
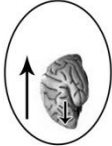
Surgical "trephine operation"

- 1- Removing depressed piece of bone & for
- 2- Removing the haematoma after ligating the bleeding B.V

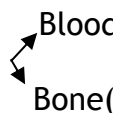
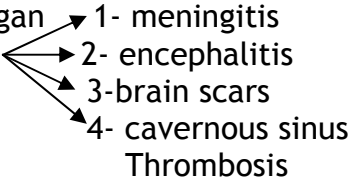
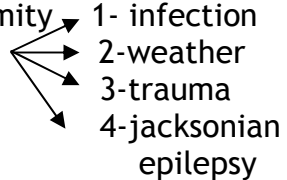
Causes or Aetiology of compression: —→ Depressed Fracture (bone) explained before
 —→ Hemorrhage

Traumatic

Pathological

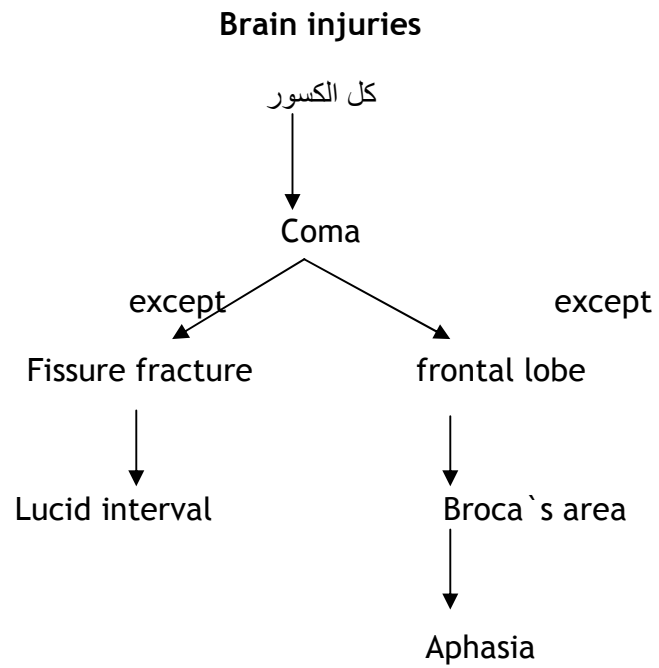
Extradura Hge	Subdural Hge	Subarachnoid Hge	Intracerebral Hge	Intraretinal Hge												
1- <u>Definition:</u> Dura & skull 2- <u>Causes</u> Fissur fracture (traumatic) → tear of extradural blood vessels 3- <u>C/P:</u> concussion → compression → liquid internal 4- <u>P.M.P</u> i- Scalp → wound ii- Skull → fracture iii- Extradural → Hge iv- Brain → comprssion	<u>Several types</u> Extension from subarachnoid or intracerebral → Hge under the dura (versus) → slower & may even stop if compressed on veins occur <u>Traumatic Types:</u> i) Acute } due to severe trauma tearing ii) Subacute } subdural vessels iii) Chronic (Pachy meningitis interna hgica) <u>Causes:</u> a- Repeated minor of trauma b- Diabetus/old /alcoholics c- Laminated 	1) <u>Pathological</u> → extension from intracerebral hge 2) <u>Rapture of aneurysm</u> <table><tr><td></td><td>Congenital</td><td>Mycotic</td></tr><tr><td>Cause</td><td>B.V weakness</td><td>Subacute bacterial endocarditis</td></tr><tr><td>Character</td><td>Single</td><td>Multiple</td></tr><tr><td>Site</td><td>Base ↓ Circle of willis</td><td>Vertex</td></tr></table>		Congenital	Mycotic	Cause	B.V weakness	Subacute bacterial endocarditis	Character	Single	Multiple	Site	Base ↓ Circle of willis	Vertex	1) <u>Pathological</u> Cerebral apoplexy → • ↑ BP → Heart • Kidney • Atherosclerosis → Cerebral vessels → Mostly at corpus striatum → rupture of lenticinlo-striate artery 2) <u>Traumatic</u> a) Coup injury → side of trauma b) Contra coup → oppsite side ↓ due to ↓ i) lagging movement of brain in skull ii) Accel. deceleration theroy 	1) Extensive intracerebral hge 2) Trauma ↓ Tearing of choroid plexus especially in children
	Congenital	Mycotic														
Cause	B.V weakness	Subacute bacterial endocarditis														
Character	Single	Multiple														
Site	Base ↓ Circle of willis	Vertex														

-Causes of death from head injuries

Immediate	Late
1- Concussion → fatal type (hge) 2- Compression  3- Cutting / laceration	1- Convulsions → Jacksonian epilepsy 2- Causative organ → infection  3- Permanent infirmity → complications 

-Sequelae of head injuries : 4 A & 4 P

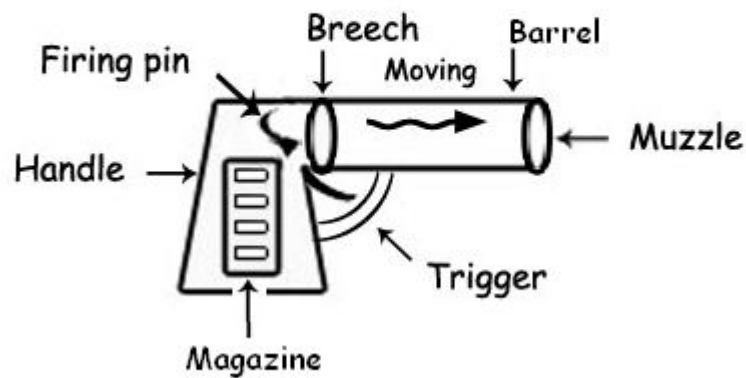
- { 1- Amnnesia → retrograde
 2- Automatism → antrograde
4A { 3- Adhesions → Jacksonian epilepsy
 4- Abcess → infection (sepsis)
- { 5- Permanent infirmity "see before"
 6- Post traumatic neurosis → vagal symptom
4P { 7- P-C syndrome
 8- Post concussion syndrome



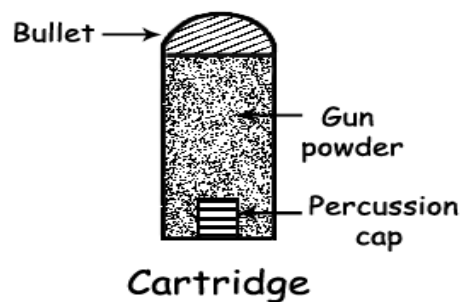
© Go through the table: diff between concussion and compression

Forensic Medicine Notes

Firearm injuries



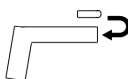
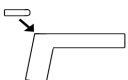
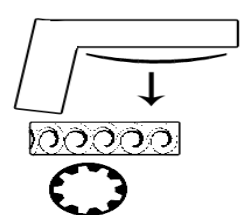
Cartridge:



1- Classification of Weapons

- a- Mechanism of Loading
- b- Cycle of firing

Forensic Medicine Notes

Mechanism of loading	Cycle of firing
1- Muzzle - Slow action - Difficult loading - Near  2- Breach - Non-Rifled - Rifled → Riflings  	1- Automatic 2- Non Automatic 3- Semi Automatic

V.Imp

Riflings

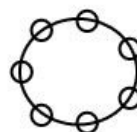


longitudinal section

a- Def: Ridges & Grooves

b- Direction:))))))) or (((((((

c- Function: 1-Spinning ⇒ ↑ Range of firing by ⇒ ↓ Resistance
2- Stability (Gyroscopic effect)



Gyroscopic effect

Forensic Medicine Notes

d- MLI:

To be compared with
experimentally fired
bullet to identify the
suspected weapon

Primary rifling (preliminary)

Secondary rifling (confirmatory)

Straches of rust & dust depend on
Frequency of cleaning & using



	Percussion cap
---	----------------

Antimony sulphate ← Aiming Firing
 ↓
 Fulminate

1- Def : cylinder $\longrightarrow$ Base in the cartridge

2- Function:

Paste

Percussion $\longleftrightarrow$ P Heat

$$\text{Cap} \quad \longleftrightarrow \quad \text{C} \quad \longrightarrow \quad \text{O}_2$$

Aiming $\longleftrightarrow$ **A** $\longleftrightarrow$ **Catalyst**

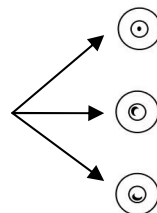
Firing ← F → Spark

→ Other types: lead stephnnate

3- MLI:

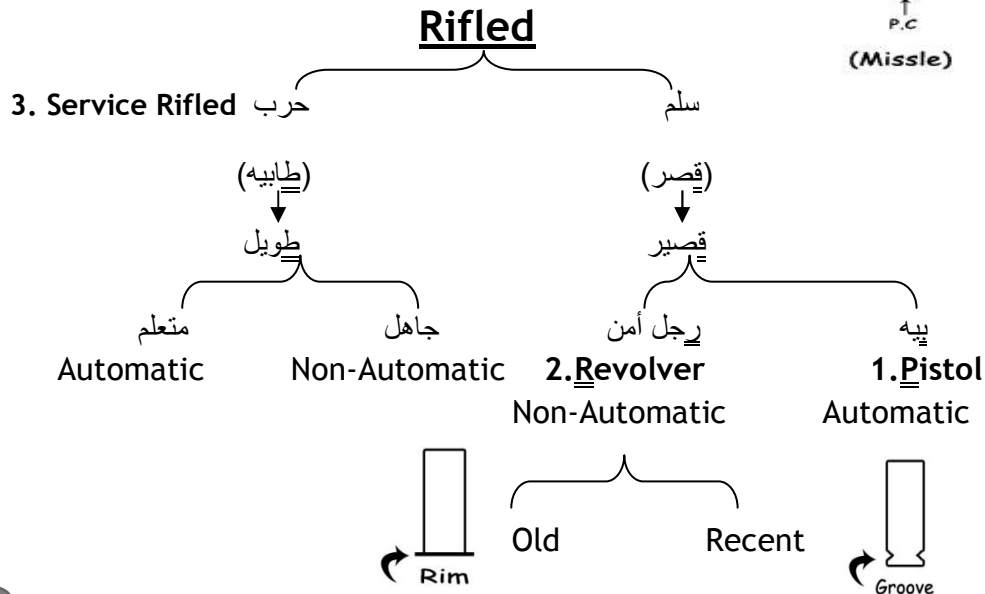
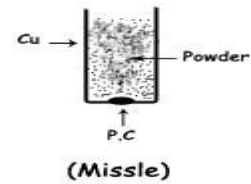
a- Fired or Not.

b- Identification of weapon.



Primer / Paste / Detonator

c- Compensation claims by workers of cartridge factories as Mercury Fulminate causes Dermatitis.

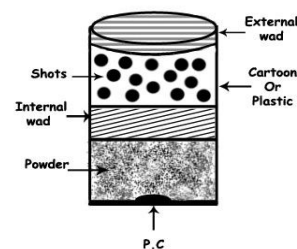
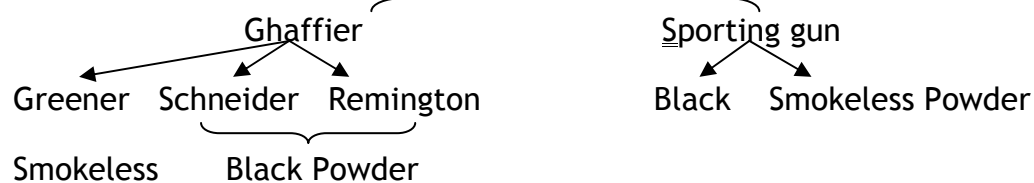


V.Imp

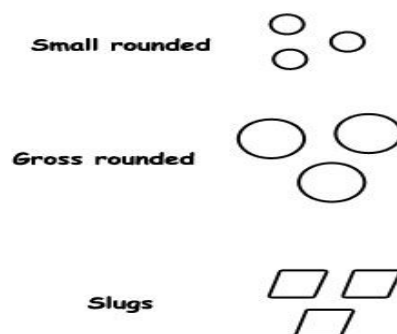
	Cartridge	Bullet	Powder
1-Pistol	- Copper - Short - Automatic (Groove)	Jacketed	Smokeless
2-Revolver	- Copper - Short - Non-Automatic (Rim)	Jacketed (Old Revolver → Non-jacketed)	Smokeless (Old Revolver → Black powder)
3- Service rifle	- Copper - Long - Auto or Non-Automatic	Jacketed	Smokeless

Non-Rifled

N.B: Missile = Shots & Wads.

Non-Rifled WeaponsShots:

- 1- Sporting → Small Rounded
- 2- Greener → Gross Rounded
- 3- Schneider } Slugs
- 4- Remington }



V.Imp

Non-Rifled Weapons

	Cartridge	Ext. wad	Shots	Int. wad	Powder
1- Sporting	* Long * Non-Automatic (Rim) * Carton or plastic	✓	Small & Rounded	✓	Black & Smokeless
2- Ghaffier G S R	* Cu * Long * Non-Automatic	X	Gross round Slugs Slugs	✓	Smokeless Black Black

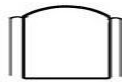
Chocking (Non-Rifled weapons)

Practical

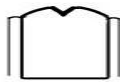
Firearm injuries

• Missiles

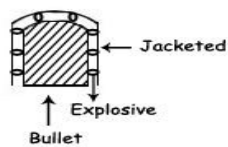
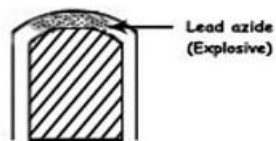
Bullets	Shots
1- <u>Non-jacketed</u> Non-jacketed deformity fragments 2- <u>Jacketed</u> (<u>F</u>ur → <u>F</u>ragmentation) Prevents fragmentation Jacketed Cu Nickel Nickel Cu (composite)	-Small → Sporting -Gross → Greener -Slugs → S & R Small rounded Gross rounded Slugs

3- Partially jacketed**Partially jacketed**

Soft nose



Hollow nose

4- Dum Dum Bullet**Dum Dum Bullet****5- Devastator****Devastator**

N.B: Composite, Partially jacketed, Dumdum & Devastator bullets are Forbidden/ Illegal by international law

V.V.Imp

• Wads & MLI

Internal wad	External wad
1. <u>التقيل</u> → 1 cm Thick	1. 1 mm Thick
2. <u>الغالي</u> → Felt	2. Carton
3. <u>العالي</u> → 3-10 m (Distance of travelling) - From 1-3 m → penetrates you - From 3-10 m → strikes you	3. 1-3 m - >1m → penetrates you - 1-3 m → strikes you
4. <u>Site</u> → Between Shots & powder	4. Above Shots
5. <u>Function</u> → a. Piston b. Barrier → prevents Leakage of gases bet. Shots c. Cleans the barrel	5. Keeps the shots in place
6. <u>MLI</u> → 6 <u>Ds</u> a. <u>D</u> iagnosis of firearm inj. —————→ ~~~~ b. <u>D</u> iagnosis of weapon (non-rifled) —————→ ~~~~ c. <u>D</u> iff. bet. Inlet & exit —————→ ~~~~ d. <u>D</u> istance of firing —————→ ~~~~ e. <u>D</u> iameter of the barrel —————→ ~~~~ f. <u>D</u> irection of firing —————→ ~~~~	

• Gun powder:

	Black	Smokeless (<u>N</u> on-Black)
1. <u>Composed of</u>	C, S, K nitrate	<u>N</u> itrocellulose + <u>N</u> itroglycerin
2. <u>On ignition:</u>	300 V of gases	<u>N</u> ine" 900 V of gases
3. <u>Residue:</u>	Carbonate & Bicarbonate (Alkaline)	<u>N</u> itrates & <u>N</u> itrites (<u>N</u> eutral)
4. <u>Present in:</u>	-Old revolver -Sporting -Schneider & Remington	-All the other types: Pistol , sporting , service rifle , Greener , new revolver
5. <u>Shapes</u>		

Forensic Medicine Notes

[illegible]

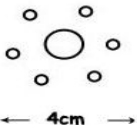
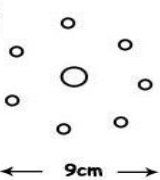
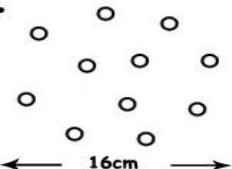
Read

- **Fabricated wounds:**
 - 1- Circumstantial evidence
 - 2- Clothes
 - 3- Superficial / safe area

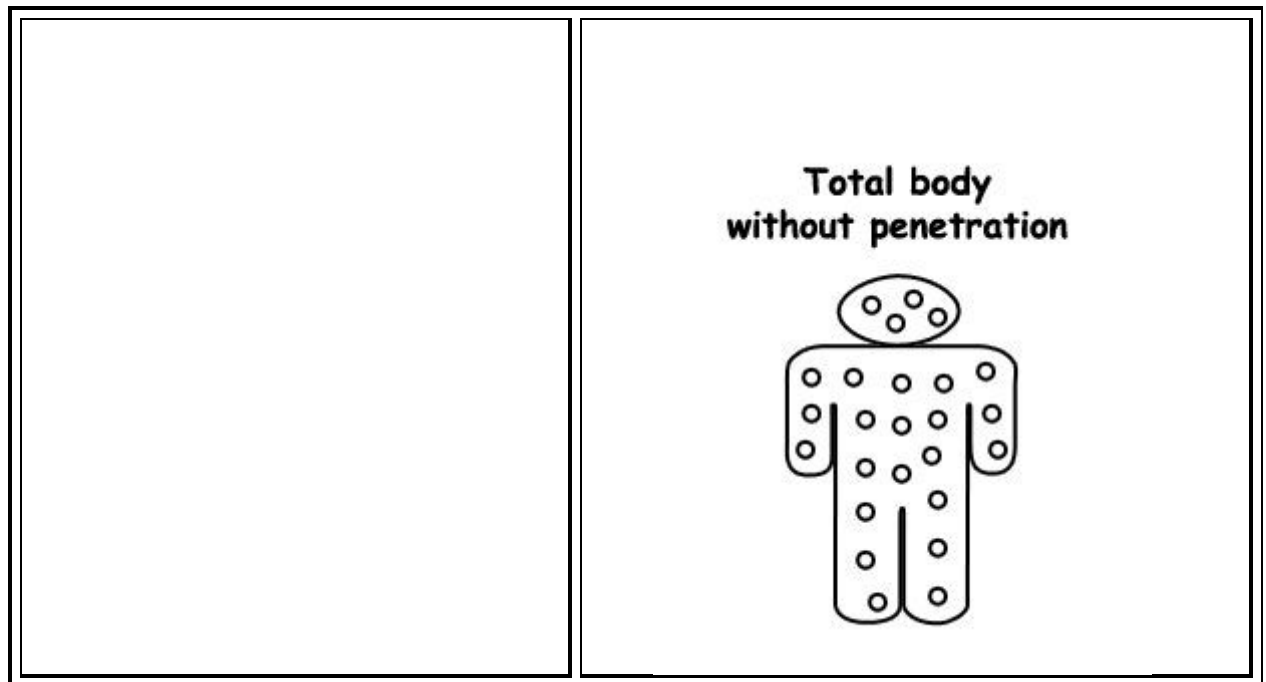
Read

- **Physical activity:**
 - 1- Medulla
 - 2- Broca's area
 - 3- Spine

- **Sequence of events of firing:**

Rifled	Non-rifled
1- Flash of light 2- Bullet + BBT 3- Hot explosive gases (15cm) → distorts the edges of the inlet (irregular, everted & wider)	1- Flash 2- <u>Wad</u> + <u>Shots</u> + BBT <i>Write Distance of traveling of wads + Distance of traveling of shots:</i> 1  2  3  4  1m $\xrightarrow{(1^2)}$ 2 cm 2m $\xrightarrow{(2^2)}$ 4 cm 3m $\xrightarrow{(3^2)}$ 9 cm 4m $\xrightarrow{(4^2)}$ <u>Full dispersion 16 cm</u> <u>Four</u> <u>Twenty meter</u> → <u>Total body with no penetration</u>

Forensic Medicine Notes



- Characters of firearm:**

1- Loss of tissue/substance

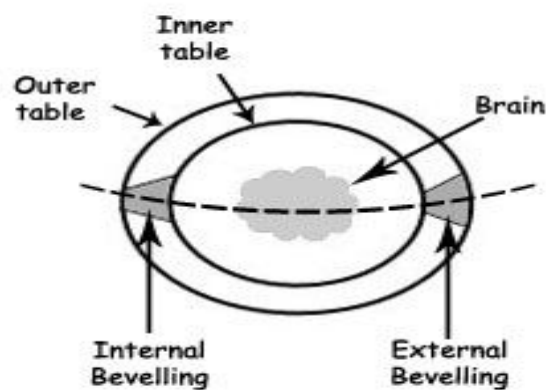
2- Inlet & Exit →

3- Powder marks → BBT

4- Bevelling.



<i>Inlet</i>	<i>Exit</i>
1. √	X
2. X (Natural orifice)	X (orifice)
3. Thorough & thorough	~~~~~
4. Tandem	~~~~~



Forensic Medicine Notes

- Distance of firing:

Near	Far
< 3m 1- Powder Marks 2- Hot Explosive Gases 3- Wads & Shots	> 3m 1- Dispersion of Shots 2- Bullets Penetration

OR

Rifled	Non-Rifled
- Bullets - Powder	- Shots - Wads - Powder

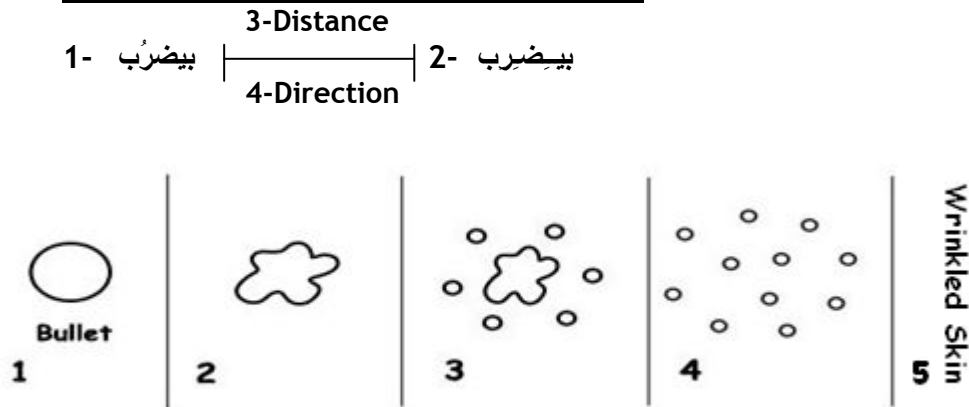
Forensic Medicine Notes

• Diff. bet. Inlet & Exit:

	Inlet	Exit
1. <u>B</u> evelling	Internal	External
2. <u>B</u> urning	✓ (Near)	X
3. <u>B</u> ruises & marginal abrasions	✓	X
4. <u>P</u> owder marks	✓✓ Except: 1. Far > 3m 2. Clothes 3. Contact firing 4. Ricochette (Reflected Bullet)	XX
5. <u>P</u> ink color	-Carbon effect → Carboxy Hb.	X
6. <u>P</u> alisade appearance (M/P)	-Longitudinal with long nuclei	X
7. <u>S</u> oiling ring	✓	X
8. <u>S</u> ize	-Small, <u>Except: NESR</u> <u>N</u> ear <u>E</u> xplosive <u>S</u> hots <u>R</u> icochette 	-Large 
9. <u>S</u> ubstance	> loss of substance	< loss of substance
10. Edge	-Inverted, <u>Except: FAN</u> <u>F</u> atty area <u>A</u> utolysis <u>N</u> ear	-Everted
11. Regularity	-Regular, <u>Except: NESR+W</u> <u>W</u> rinkled area  Regular	-Irregular  Irregular

Forensic Medicine Notes

• Factors affecting shape of inlet :



a. Bullet or / Shots

- b. Powder → Black
 Smokeless

Suicidal / Homicidal / or Accidental

Firearm injury	Suicidal	Homicidal	Accidental
<u>1- Circumstantial evidence:</u> 1- Door 2- Disturbance of furniture 3- Daily note 4- Depression 5- Dactylography <u>2- Victim:</u> 1- Burning & blackening 2- Clothes 3- Sex 4- Spasm 5- Sign of struggle	Close from inside X ✓ ✓ Victim ✓ No tear Male Weapon X	Closed from outside or not ✓ X Threatening Assailant X May be torn Male or female Anything belonging to assailant ✓	+ <u>Ceremonies</u> <u>Cleaning</u> <u>Children</u>

Forensic Medicine Notes

3- Wound: (TEN SAD) -No. -Site -Shape -Direction -Distance	1 Within reach + vital organ Irregular, lacerated, everted Upward Near	>1 Anywhere Anything ✓ Any distance	
4- Assailant: Search for skin residue	X	✓ Nitrates, Nitrites/Metals	
5- Weapon: -Where -Witness -Which type -Defects	✓✓ Finger prints of victim Rifled X	XXX Finger prints of assailant Any type X	✓✓✓

Thermal injuries

1- Heat disease
4- Corrosives

2- Burns
5- Radiation

3- Scalds
6-Flash burns (electrocution)

I- Heat Diseases

Heat diseases	Causes	C/P	Treatment	P.M.P
1) Heat cramps ↓ Striated muscles	Excessive loss of NaCl, Cl ⁻	Cramps	Cl ⁻ supply (NaCl tablets, IV saline)	مايموتش
2) Heat syncope (heat exhaustion) ↓ Heart	Heat → Heart muscle → vascular collapse	BP Temp. } shock Resp. ↓ Pulse	Treatment of shock	مايموتش
3) Heat hyperpyrexia (heat stroke) (sun stroke) ↓ Head	Hypothalamus = HRC XX	Dry, flushed skin, anorexia, thirst, convulsions, Coma & Death	• Ice { Foments Enema • Cold room	- ↓ Putrefaction - ↑ R.M - ↓ Cooling - Congested viscera & brain

• Predisposing factors:

- 1- Non-acclimatized
- 2- Fatigue, old age & humidity
- 3- Drugs e.g. Alcohol & anti cholinergic

Oral

N.B:

- Heat syncope → body temperature is low due to shock
- Sun stroke occurs only in sun exposure → No, it can occur also in shadow because it depends on high temperature not the sun

Scheme

- 1- Definition
- 2- Condition of burn
- 3- Classification
- 4- Factors affecting prognosis of burn
- 5- P.M.P
- 6- AM or PM
- 7- Characters of burn
- 8- Causes of death
- 9- Age of burn
- 10- D/D

II- Burns: (due to dry heat)1- **Definition:** Heat injury due to dry heat2- **Condition of burn:**

- Accidents
 - Workers
 - Children
 - Car & airplane crashes
- Suicidal → female mainly
- Homicidal → rare...

- ↓
- 1- After death (لاخفاء الجريمة)
 - 2- Child abuse

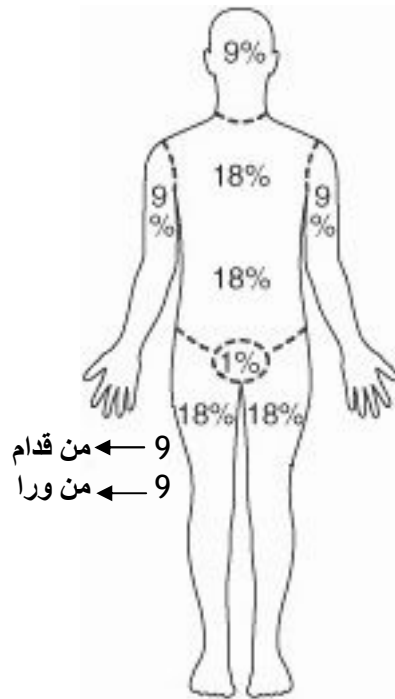
3- Classification:

Dupuytreu	Hebra	Wilson	According to ttt
1- reddnen 2- vesicles	سطحي → 1	1- Epidermal → Epidermis → Erythma	1 st → self healing
3- Superficial 4- Deep skin	جلد → 2	2- Dermoepidermal	2 nd → surgical graft
5- S.C 6- Charring (carbonization Muscle, bone)	تحت الجلد → 3	3- S.C	3 rd → surgical amputation

4- Factors affecting severity or prognosis of burn:

a) Surface area Wallace's rule of "9"

- > 60% → fatal
- Rule of nine



Surface area is more dangerous than degree

- Water Loss
- Infections
- Neurogenic shock

2 T { b) Time $\propto$ severity
c) Temp $\propto$ severity

5 S { d) Strong (health) $\propto \frac{1}{\text{severity}}$
e) Small or old age
f) Site of burn
 → head & neck & trunk → more dangerous
g) Superficial or deep

5- P.M.P:

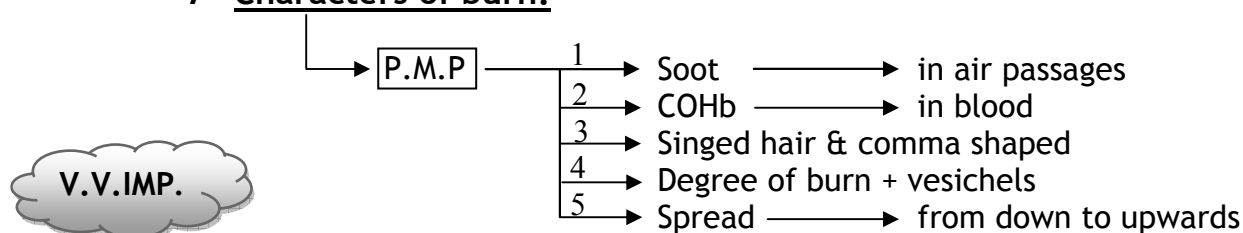
Body & Organ	Passages	Blood	Bone
A) برة 1-Degree (Any degree) 2-Red () → carboxy Hb 3-Pugilistic attitude i.e. Boxer' attitude "generalized flexion" → Coagulated ptn → ms 4-Heat rupture(skin split) Due to coagulation of skin protein B) جوة 1-Coagulated organ → Effusion 2-Rupture 3-Coagulation → مسلوقة	Soot رماد كربون	1- Concentrated ↓ Due to eruption of plasma as effusion in organs 2- Red "carboxy Hb" "CO"	"Thermal fracture in the skull" ↓ Fissured fracture ↓ Due to: 1- Brain → losses water in the form of vapour ↓ ↑ ICT ↓ fracture of inner table 2- Outer table ↓ losses H₂O ↓ dissection of bone → similar to erosion

6- AM or PM:

	A.M	P.M
1- <u>P.M.P table</u> ↑ except: - Boxer attitude - Heat rupture - Thermal Fracture	✓✓✓	xxx

	AM	PM
• N.E	Healing or sepsis	xx
• M.E	Leucocytic infiltration "Tissue reaction"	xx
• Cause of death	Burn	Anything except burn

7- Characters of burn:



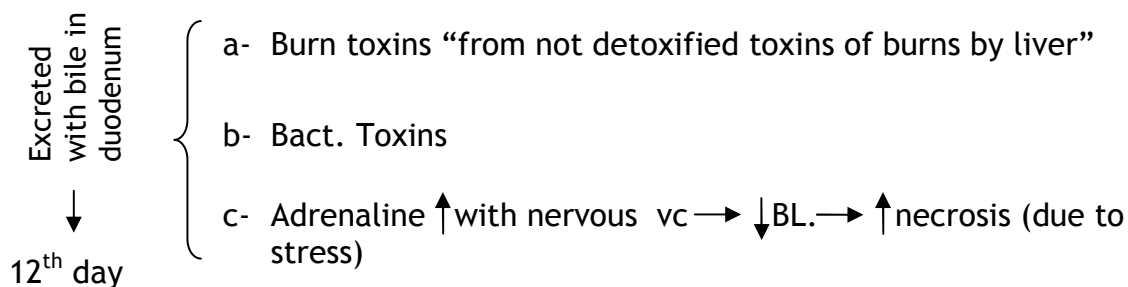
8- Causes of death: 3×3

1 st six hours	6hs → 2 days	> 2 days
3C 1-* CVS → or sympathetic neurogenic shock → due to fear of pain when they are trying to escape 2-* CNS → Head injuries 3-* Resp. → 1 → Traumatic asphyxia → falling or ppl step on chest and abdomen during escaping 2 → Choking → due to inhalation of fumes or nitrous gasses	1-* Plasma → -evaporation → Oligaenic shock "hypovolemic shock" - ____ vesicle → Edema of glottis - perfusion into tissue 2-* Fat embolism (pulmonary) 3-* Histamine → VD ↓ VR ↓ CO Toxaemic shock or Haematogenic shock	* Sepsis 1- Inflammation & degeneration of organs 2- Supra-renal failure ↳ on 5th day 3- Stress ulcer "curling ulcer" ↳ 12th day

Forensic Medicine Notes

- "Curling ulcer" → acute duodenal ulcer

↓
Perforate in 12th day → Death



9- **D/D:** (→ if you are asked give an acc. on scold or corrosives → write these columns only)

	Burn	III- Scold	IV- Corrosive
1- Soot in air	✓	×	×
2- Hair	Singed	Wet	Eaten
3- CO in blood (COHb)	COHb	×	×
4- Vesicles	May be 2 nd degree around burnt area	✓	×× (never due to hygroscopic effect)
5- Cause	Dry heat	Moist heat	Chemical subst.
6- Clothes	Burnt	Wet	Eaten + discolored
7- Classify (degree)	1 st → 6 th	1 st + 2 nd erythema vesicles	1 st , 3 rd , 4 th no 2 nd → no vesicles degree
8- Charring	✓	×	✓
9- Spread Channels	↑ Below ↓ upward	↓ é gravity	↓ é gravity

10- Age of burn:V.V.IMP.
MCQStart (when did the burn start)Histochemical reaction
(Microscopically)Sepsis

36 hours

Esterase enzymes → 45 minutes

3A	{	↑ <u>A</u> mino peptidase	→ 2 hours	}	$2 \times 3 = 6$
		↑ <u>A</u> cid phosphatase	→ 3 hours		
		↑ <u>A</u> lkaline phosphatase & RNA & DNA + leucocytic infiltration	→ 6 hours		

• END (Heals after)

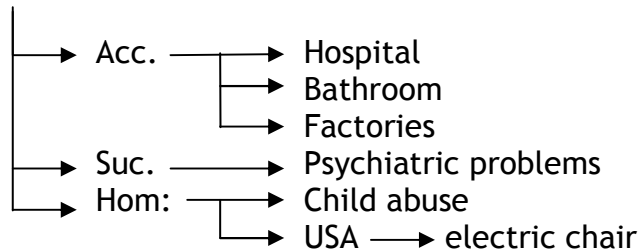
Vesicles

Heal
1 week

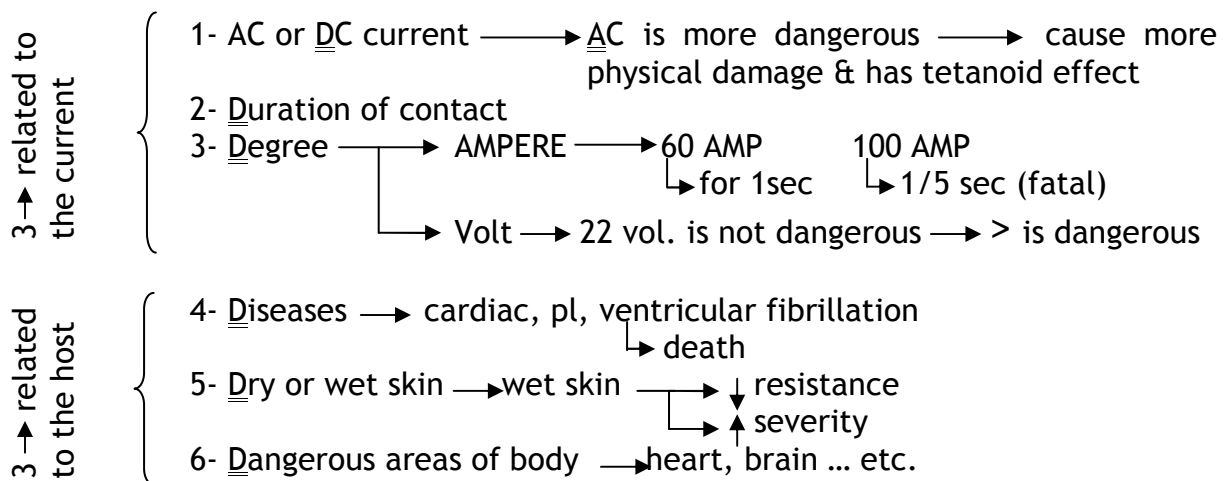
Red (erythema)

Disappears
2 days

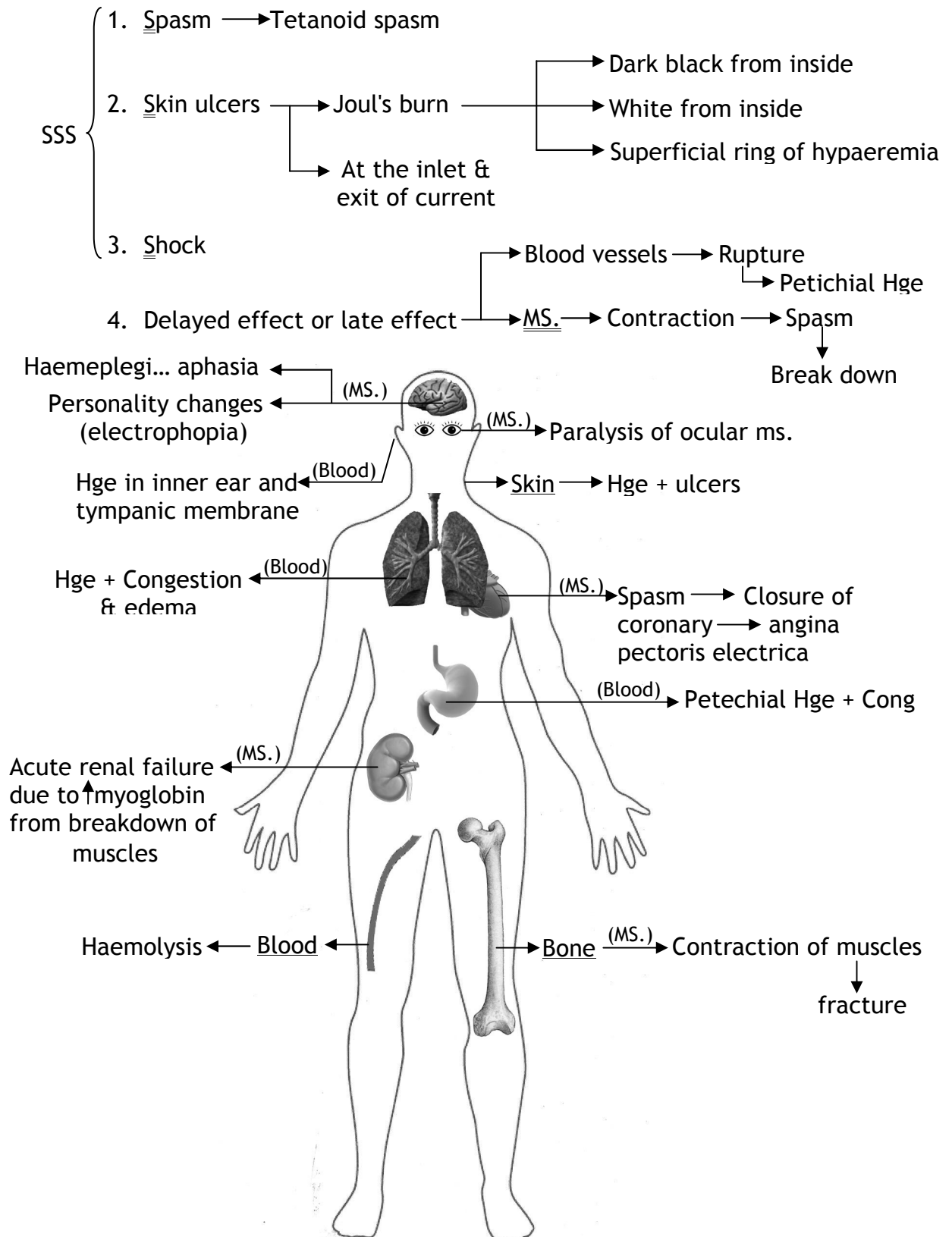
- **Condition of electrocution:**



→ or factors influencing the effect of electric shock:



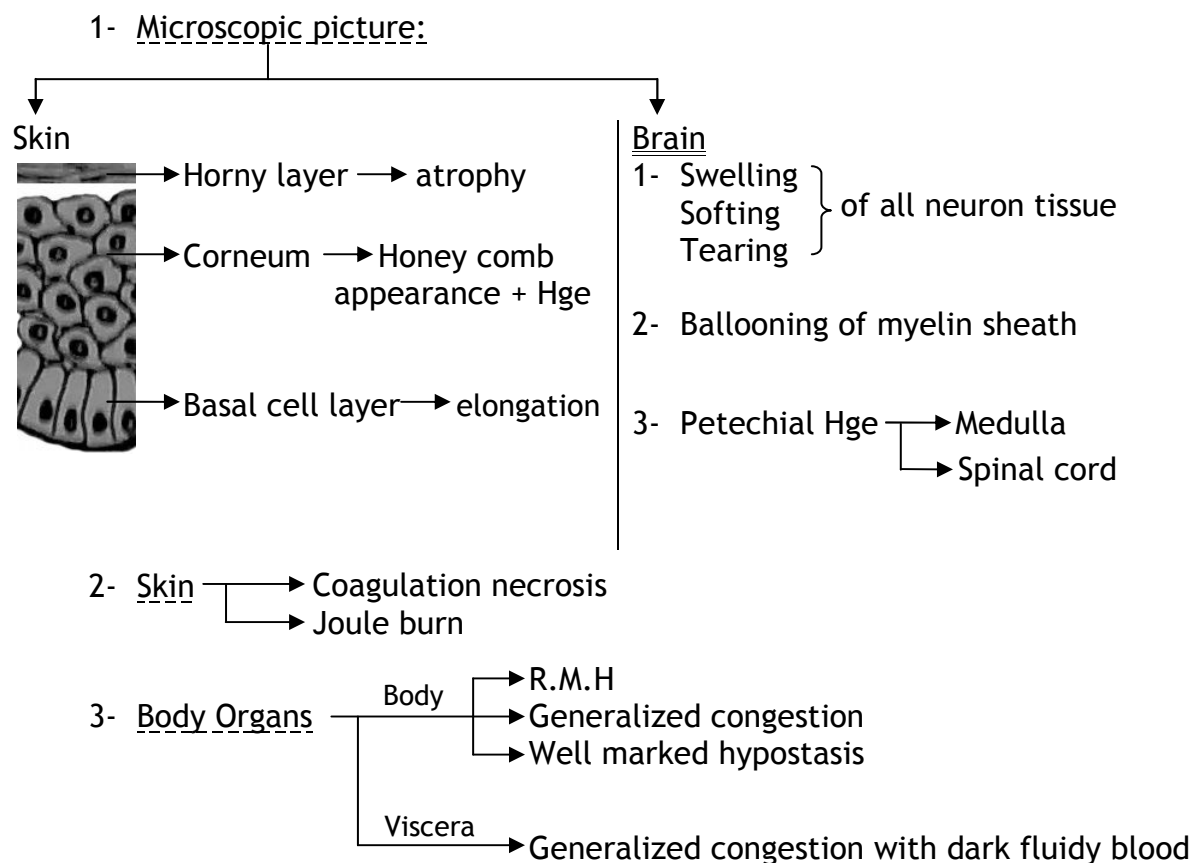
- C/P → "3S" of Electric/Flash burn



• Cause of death from Electric / Flash burn:

<u>CVS</u>	<u>Resp.</u>	<u>Brain</u>	<u>Skin</u>
Heart ↓ 1- <u>Ventricular Fibrillation</u> 2- <u>Vagal shock</u> ttt by fibrillator + cardiac stimulant	1- Central asphyxia (Brain) 2- Peripheral asphyxia (Chest) Below level of heart ttt by artificial ventilation + cardiac stimulant	1- Brain anoxia	Burn ↓ Jule's burn ↓ Infection enters through the inlet or exit
Continue ttt until R.M or survival occurs because of fear of apparent death			

• P.M.P of flash burn / Electric:



4- Metalization

- Metal deposition on skin (superficial layers& some hair follicles)



- Gives +ve reaction until onset of putrefaction

N.B:

Boehm → describe use of scanning electron Microscope to detect metallic particles

VI- Radiation:

→ Radium
→ Cobalt
→ Radiation

A) Ionizing radiation: → Radiotherapy
→ Radioactive chemicals
→ Nuclear

Atrophy

1) Skin	2) Eyes	3) Gonads	4) Blood
• ↑Pigmentation (hyperkeratosis) • Cancer • Dermatitis ulcer & burns • Loss → Hair & nail & finger print	Cataract mainly	♂ → Sterility → Impotence ♀ → Sterility → Still birth → Abortion → Congenital anomalies	• Leukemia • Cancer • Alpastic anemia

A) Ionizing radiation:

C/P

5) Bone	6) Bone Marrow	7) Acute radiation syndrome (ARS)
↓ Osteogenic sarcoma	- Leukemia → Aplastic anemia → Thrombocytopenia → Agranulocytosis	"Whole body exposure" → Nausea → Vomiting → Diarrhea → Melena → Dehydration } Very common } Rare

B) Non-ionizing radiation:

→ UVR
 → US

	Acute	Chronic & prolonged
1- UV	- Skin → sun burns - Eye → temporary blindness or dazing - Pregnant ♀ specially in 3rd trimester → affection of the fetus	Pigmentation of skin → Aging of the skin → Cancer
2- US & Laser ↓ <u>L</u> ight <u>A</u> mplification by <u>S</u> timulated <u>E</u> mission of <u>R</u> adiation		- Eye → Corneal keratitis → Retinal damage → Macular burns

N.B: → Identification of burnt bodies:

1) Fragments of clothing



2) Traces of jewellery



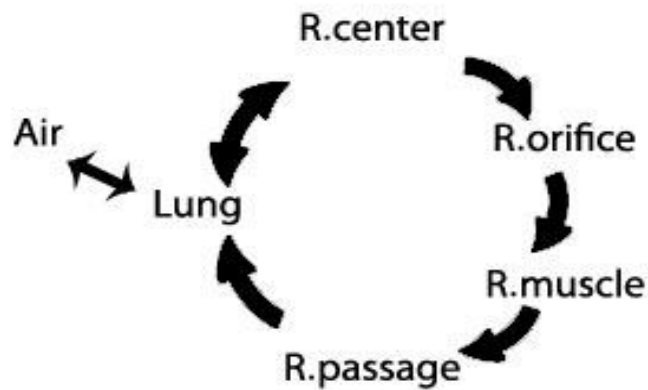
3) Dental marks in the mouth


 4) X-ray → Old deformity of bones
 → Compare with other old x-rays

Asphyxia

1. Def.
2. Causes
3. Stages
4. PMP

- Def.: $\downarrow O_2$ (Hypoxia) $\uparrow CO_2$ (Hypercapnia)



- Causes:

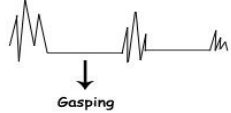
(1) حادثة Accident	(2) مرض Pathology	(3) تسمم Poison
RP Anything interferes with respiration	RM→ poliomyelitis RP→ Diphteria RC→ Pontine hemorrhage	RM→ Strychnine-oxalic acid RP→ Gases, CO_2 , CO... RC→ Morphine

4- Environmental” NO_2 & $\downarrow O_2$ ” e.g. High altitude

5- Iatrogenic → Dr. (Mainly with anaesthesia)

• Stages:

Written

	body	CVS	respiration
<u>3C</u> <u>C</u> yanosis & dyspnea	Blue	↑ BP ↑ Pulse	↑ Rate & Depth (Dyspnea)
<u>C</u> onvulsions	Blue	↑ AP (Arterial Pr.) Tardieu spots (Refer to book)	↑ AP (Alveolar pr.) Silvery spots (Refer to book)
<u>C</u> hyne stokes breathing = irregular Breathing	Blue	↓ BP ↓ Pulse	 Gasping Gasping → Gaps of Apnea

• PM.P:

External signs of asphyxia: 4B (2 Blue & 2 Bulging)

- ☐ Blue body (face- lip- nail mm). لأن فيه CO₂ يترك الدم
- ☐ Blue hypostasis. في كل الاموات
- ☐ Bulging eye (conjunctival edema & congestion).
- ☐ Bulging tongue (with blood froth).

لازم تكتب في التوكسو

Internal signs of asphyxia (2 Congestion & Blood & 2 spots)

- Congestion → All organs
- Congestion → lungs
- Spots → organ (Tardieu spots)
- Spots → lung (Silvery spots)
- Blood: Dark blue fluid due to ↑ fibrinolysin

Due to ↑ CO₂ → damage of endothelium → release of fibrinolysin

س: ليه دمهم مش بيتجلط بسهولة ؟

س: طب وليه زايد ؟

شفوي هام

Tardieu spots:

Petechiae due to:

- Simple mechanical obstruction of its venous return of blood from the parts → ↑ capillary pressure to bursting point
- Suboxia → ↑ capillary permeability → escape of blood into tissue spaces

بتلمع زي الفضة

Forensic Medicine Notes

Silvery spots: Subplueral
-Are due to expiratory
rupture of unsupported



air vesicles
dyspnea → ↑ intra_ alveolar pressure →
alveoli

Violent asphyxia:

Neck	Suffocation	Drowning
1-Throttling مسكت ال Throat بإيدي 2-Strangulation خنقته بحبل او اي حاجة .. لكن ايدي لمستش رقبته 3-Hanging علقته من رقبته	1-Smothering Mouth & Nose كتمت نفسه ONLY 2-Choking شرق... قفل ال Air passages من جوا 3-Traumatic asphyxia نتيجة اصابة .. طوبة جت على ال Chest or Abdomen منعت ال Resp. Movement	

Scheme for Neck & Suffocation:

1. Def.
2. Condition : accidental-suicidal-homicidal
3. Cause of death : CNS → CA → cerebral ischemia
CVS → vagal shock
Closing of airways
4. PM.P : General : external & internal signs
Local :
 1. علامة
 e.g. : -Throttling → صوابع على الرقبة
 -Smothering → Mouth & Nose صوابع حولين ال
 -Strangulation or Hanging → علامة حبل على الرقبة

2. عضلة



(Bruises- Lacerations - Rupture- Congestion)

+ *In Neck:*

1-Pharynx
2-Larynx
3-Carotid Artery } Hge

4-Trachea → NO Hge.

Forensic Medicine Notes

3. عظمة → العظمة التي بتتكسر

4. عضة → Signs of Struggle & Resistance

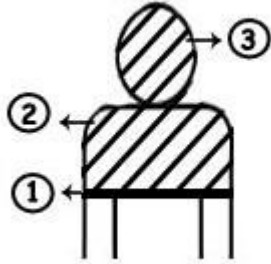
Except { -Hanging → لان نسبة الانتحار 96%
-Choking → واحد شرق وهو بياكل

Overlying لازم اكتب معاه ال
* لكن لو سوال overlying لو حده مش هكتب
smothering ال

	Throttling	Smothering
1-Def.	Neck/ Hands	Mouth & Nose/ Hands
2-Conditions:		
-Accidental	Quarrels- Jokes- Sports	Children- <u>Overlying</u>
-Suicidal	Rare → Cadaveric spasm	Rare → May be Cad. Spasm
-Homicidal	Weak لازم يكون اضعف	Common : Old - Infants- Narcotized
3-Causes of death:		
- CNS	✓	X No CA
- CVS	✓	X No Vagus
- Closing of air passages	✓	✓
4-PM.P:		
General : External	✓	✓
Internal	✓	✓
Local:		
1- علامة	-Semi lunar & linear nail abrasions & bruises -Around the Neck	-Hand & Nail abrasions & Bruises -Around Mouth & Nose May be Absent → لو كتمت نفسه بمخدة مثلاً
2- عظمة	Fracture <u>INWARD</u> of Hyoid bone لان الضغط عليها من برا لجوا	X → Nasal Septum & Teeth

Forensic Medicine Notes

عضلة-3 عضلة-4	Neck muscles Signs of Struggle & Resistance + <i>In Neck:</i> 1-Pharynx 2-Larynx 3-Carotid Artery } Hge 4-Trachea → NO Hge.	Facial muscles Signs of Struggle & Resistance لازم اكتب معاها الBurking
	Choking	Traumatic Asphyxia
1-Def. 2-Condition: - Accidental: ↓ <u>Mainly قضاء وقدر</u> - Suicidal: - Homicidal: 3-Causes of death: <u>CNS:</u> <u>CVS:</u> <u>C</u>losing of air passages:	-Occlusion of air passages / <u>INSIDE</u>  1-Solid → بذرة بطيخ- حنة لحمه 2-Liquid → Bl. in cut throat 3-Gases → Edema of passage 4-Pathological e.g. Diphtheric Membrane -Rare -Infanticide by gagging e.g. piece of cotton (Rare) X No CA ✓ ✓ + Contraction of larynx Death 	-On resp. muscles(Chest)→ Pressure on chest→ preventing resp. movement 1-Crowd → موسم الحج مثلاً 2-Collapse of building 3-Car accident X Burking: Sitting on chest Was 1st done by guy called Burke therefore was called by his name.  X X ✓✓

4-PM.P: <u>General</u> : External Internal <u>Local:</u> 1- علامة عظمة-2 عضلة-3 عضة-4	✓ ✓ هام جدا -Foreign body In air passages بذرة بطيخ – حبة لحمية – قطنية ... X X X Mainly Accident → No signs of Struggle & Resistance	✓ ✓ هام جدا 1-Line of demarcation: مكان ال Compression زي الحزام منع نزول الدم ..خلاله يتجمع فوق بس 2-Cyanosis in upper part: 3-Petechial Hge in upper part of body "Face, Neck &Chest"  -Sternum & ribs -Chest muscles -If Burking (Homicidal)→ Signs of struggle & resistance
--	--	---

	Strangulation	Hanging
1-Def.	Neck / Ligature  اي حاجة غير ايدي	Constriction of Neck by Body weight using Ligature Types : 1-Typical العقدة من ورا 2-Atypical العقدة من قدام او من الجنب Or: 1-Complete ما يلمسش الارض برجيله 2-Incomplete لامس الارض بركيته او بايديه.. هو محتاج وزن ال Head Only كمان ممكن Air passages ال يرجع لسانه لورا يقفل ال (Refer to book)
2-Condition: - Accidental - Suicidal - Homicidal	-Children -UC(umbilical cord) →psuedostrangulation -Rare may be in Multiple turns or tightened rope Commonest بس شرط يكون اضعف منه	-Children -Falling from scaffolding Commonest -Postmortem suspension لو ميت -Narcotized لو صاحي
3-Causes of death: CNs CVS Closing of air passages	✓ ✓ ✓	✓ ✓ ✓ + Cervical vertebrae fracture in Judicial Hanging
4-P.M.P. General -External signs -Internal signs	✓ ✓	✓ ✓

شفوي هام

Local

1. علامة

1-Ligature marks:

- a-Symmetrical around neck
- b-Equal force all around
- c-Transverse
- d-Below the larynx
- e-Complete

Except in:**1-Garotting:**

Victim attacked from behind without warn

احذف حبل على واحد من ورا
واجرجره على الارض

2-Mugging

Holding neck of victim in the bind of elbow

يخنقه من ورا بال Forearm

3-Palmer strangulation

(when the assailant right hand was horizontally placed across the victim mouth & then reinforced the pr. By placing the left hand on top at right angle to the other)

يخنقه وهو نايم

2. عضمة

2-Fracture INWARD in hyoid

3. عضلة

3-Neck Ms. +

4. عضة

4-Signs of struggle & resistance

****NB:**

-In putrified body →

look at bone الوحيد اللي مش متعفن

1-Ligature marks:

- a- Deepest at part of suspension & Tails & disappears as it raise
- b-Forces are not equal all around
- c-Oblique
- d-Above the larynx
- e-Incomplete

شفوي هام :ممكن تبقى Complete؟؟؟

اه لو عملت الحبل Double

2-Fracture OUTWARD in hyoid

3-Neck Ms.

4-xxx

تحت-5

Submandibular glands

Dried saliva (dribbling) بيريل

الحبل بيضغط عليها .. فبتطلع

Salivation

Forensic Medicine Notes

	-Throttling → Fracture of thyroid cartilage	ما بينهما-6 Carotid artery (Transverse tears) لانه مشدود اوي ويبطلع كمية دم كثير تحت-7 <i>Hypostasis</i> in lower limb
--	---	--

Overlying:

Def: Accidental smothering

Condition: - Prone Position in Infant.

- Breast feeding

- Building (fallen houses) عمارة وقعت

Causes: -Closing of resp. orifices.

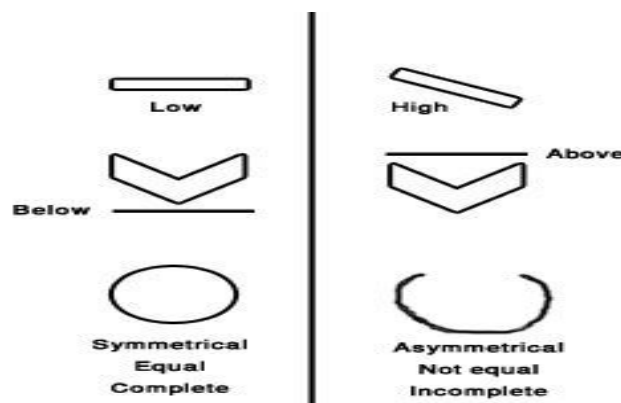
PM.P: -Hypostasis in Ventral aspect of the body "Prone Position"

-Flattening of nose



Ligature marks (V.Imp.)

Strangulation	Hanging
Transverse & lower	Oblique & higher
Symmetrical	Not symmetrical → deepest at site of suspension & disappear on raise
Equal force	Not equal force all around the neck
Complete	Not complete
Below Larynx	Above larynx



Drowning**1-Def.:** Mouth & Nose /under H₂O (Most common cause of mechanical asphyxia)**2-Condition of death:**

- a- Accidental (Most common) → No injuries مش قتل... لان مغيث جروح
→ Naked (epileptic & drunken person)
- b- Suicidal (common) → Not naked
→ Ties + stones
- c- Homicidal (less common) → infanticide
→ PM → injuries
→ Another cause of death

3-Causes of death (CM)

- 4C { 1-Closing of air passages
2-CNS (head injury - fatal)
3-CVS (vagus) → cardiac arrest → reflex vagal inhibition
4-Contraction of larynx (laryngeospasm) (dry drowning)
M { 5-Murder

Putrefaction

↓	↑
↓Temp.	↑Temp
↓ Air	↑ Air↓↓
↓ Boot	↑ Boot
↓ Water	↑Water

Diagnosis:

PMP: N.B.: Q. Sure signs → don't write possible
Q. external signs → ext. Possible
→ Ext. Sure

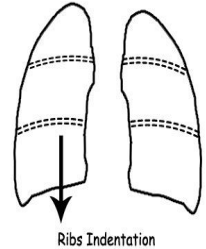
1-Probable signs :**- External (chapter 3)**

- 1-hypostasis stasis of blood in dependent areas
Head, neck, face
Pale (water dilutes the blood)
- 2-cooling → normal within 12 hrs., but here its faster (9 hrs.)
- 3-RM → goose skin (cutis anserine)
- 4-putrefaction → peeling of epidermis (gloves → hands & feet)
Finger prints remains on dermis

5-adipocere

6-washer women skin

(.... skin) of hands & feet 24 hrs after submersion

**2-Sure signs:**

→ a-external

→ b-internal

A-External:

سمكة-

(cadaveric spasm)

Hands firmly grasping weeds, sands, etc.

مبة-

(froth)

- **Site:** around mouth & nose- **Formation:** air + H₂O + mucous + forcible respiration → froth- **D.D:** drowning putrefaction (offensive, dark brown bloody & coarse bubbles)

	drowning	putrefaction
Size	Fine particles	coarse
color	white	Brownish, blackish
smell	xxx	offensive
Pressure on chest	reappears	xxx

B-Internal:

تشریح

Air passages → P.T.D

1-air passages:

-Froth مبة

-Foreign bodies + Planktons → Active Resp. نزل صاحي وعمل

-Congested mucosa

- Distance in Bronchioles

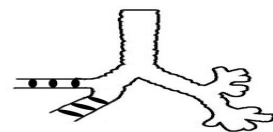
The more distance, the more sure that dead was due to drowning

- Differentiate: Pulmonary Edema

Pulmonary شفيوي هام : شفت جثة ملبانة مبة؟ مش ممكن تكون

Edema مش غرقان ؟؟؟

ج: الفرق الوحيد ان ال FB بيكون في الغرقان بس !



- a- Pale lung: H₂O expels blood from pulmonary capillaries
- b- Ballooning of lung (emphysema aqueous): bulky voluminous with ribs indentation on the over distended surface
- c- Petichial hge (sub-pleural)
- d- Bubbles or oozing froth on cut section

4-Stomach:

Foreign body

-ve $\searrow \rightarrow$ drowning (rapid)

5-heart $\longleftrightarrow$ Tardieu spots (sub-pericardial hge)

Hypovolemia diluted blood

Chemical Tests

6-skull:

Temporal bone hge due to

- barotrauma
- Aspiration of fluid into eustichian tube

7-planktons (diatoms):

- Def.: unicellular algae (microscopic*)
- Found in: all (organs - blood - tissues) except spleen
- MLE:
 - 1-sure sign of drowning
 - 2-sure sign of drowning even after putrefaction → bones → plankton's
 - 3-nature of water → site of drowning
Where the algae (planktons) came from
 - 4-type of death (large) → prolonged submersion

Sexual offenses

Unnatural:1. Buccal coitus:

→ Penis → Mouth (child)

رجل	Child
Penis (Teeth Marks)	Mouth (Semen)

2. Frotteuism

→ Friction

3. Feticulism

→ فتش على حاجات المرأة

4. Exhibitionism → Exposure of Genitalia in front of others.5. Sadism → inflection of pain on the other partner to get sexual gratification. It may be → death.6. Masochism → The male obtain sexual enjoyment by receiving pain stimuli from the female partner.
↓
Man7. Necrophilia → Neaophagia.

→ Sexual intercourse with Dead Body → مقابر
→ مشارح

8. Transvertism → Sexual perversion where male finds sexual pleasure on weaning female clothes & vice versa.9. Bestiality → Human & Animal:
➤ Male & Animal.
➤ Female & Animal.

10. **Sodomy:** Male
- Male (Male Homosexuality)
 - Female (Buggery) → Ground for Divorce
 - Child

- Causes:
 - Sailors
 - Prisoners
 Psychological Disturbance or Endocrinal Disturbance.

- Examination:

A. Passive Sodomist (Habitual):

- General: Feminine gate & speech & Clothes.
- Local:
 - Knee-Elbow position (Done quickly & in front of any one)
 - Anus:
 - Open → Wide & Funnel shape 
 - Skin → Lost wrinkle & fissures
 - Sphincter Reflex → Lost
 - Mucosa → Wide & lost rugae "Smooth"
 - Semen in Anal canal → A proof of Sodomy



B. Active Sodomist:

- Penis:
 - Elongated, Narrowing & kinking → Due to Anal changes of the 2nd Male
 - Fecal Matters

11. **Tribadism** (Lesbianism)

- Female & Female (Female Homosexuality)
 - Nymphomania "Uncontrolled Sexual Desire"
 - Hate Men "Repulsion for Males"
 - Consent → Not Punishable

❖ N.B. Sexual Asphyxia:

➤ Definition:

- It is self-inflicted, Sexual pleasures induced by Hypoxia.
- Naked or with Feminine clothes.
- In front of Mirror.

➤ Using:

- Rope.
- Mirror.
- Feminine Cloths.
- It's Accidental NOT Suicidal → should tell the parents.

➤ الانحراف:

- Feminine Cloths.
- Masochism.
- Martidism.

Natural:

I- Incest: → Sexual intercourse between persons of forbidden degree of relationship, e.g.: father é daughter
Consent of ♀ is not accepted.

II- Rape:

1- Definition: Sexual intercourse with female without her consent.

V. IMP.

2- Conditions of consent of female: (A P C D)

- Below 7 yrs = Max punishment
- A • Age → >18
- Afraid → Under fear → Physical violence
Moral violence } Submission
- P • Powerful physically
• Powerful mentally
- C • Consciousness → Narcosis → Opium or Barbiturates
Alcohol
→ Anesthesia → Exotic dreams → therefore it's always recommended to have 3rd party
- D • Deception (Fraud) → Impersonate of husband during sleep
Misrepresentation of act as a method of ttt of diseases as sterility

الجروح + حافة
من راحة الآخر

3- Examination of the victim:

		Clinical examination		Investigation	
1- <u>Consent</u> > 21 yrs 2- <u>Conduct</u> 3- <u>Condition</u> of attack	A P C D 1. Age 2. Afraid 3. P.P 4. P.M 5. Consciousness 6. Deception	1- General violence:		1- Pregnancy	
			جروح	Assailant	2- Venereal disease
		1)Clothes	Tears Lost button	Hair, blood, semen	a) C/P→ discharge
		2)Body *	Abrasions Bruises Bite marks		b) Culture → Gonorrhea
		3)Hair	Disarrange- ment	×	c) Serological
		4)Nail	×	Skin + epithelium	3- Semen
		2- Local violence:			→ Clothes
			جروح	Assailant	→ Body
		1) Vulva	A, B, B	semen, blood	→ Hair
		2) Pubic hair	×	Sever matting	→ Vaginal swab (1w)
3) Hymen	Rupture	×	↙ Semen remains in vagina for 1w		
* 1- General violence 2- Body: A, B, B ↳ <u>A</u> ging, <u>A</u> ge factor, <u>A</u> natomical site, <u>A</u> nother look ↓ • Face & around mouth • Neck, breast, arm, leg • Inner aspect of thighs ↳ Deep Bruises ↳ <u>Age Factor</u>			<u>Analysis</u>		
	Child	Adult virgin	Adult married	→ 3 Preliminary	
1- General violence	×	×	✓✓	1- UV (blue fluorescence)	
2- Local violence	*Deep seated hymen *dispropor- tion	✓✓	×	2- Florescence test	
				3- Barbories test	
				→ 3 Confirmatory	
				1- M/P	
				2- Acid phosphatase E	
				3- Lactic dehydrogenase	
				→ 3 Specific	
				1- Precipitation test	
				2- Group test	
				3- DNA typing	

4- Examination of Assailant:

		Clinical examination	Investigation										
1- Consent 2- <u>Conduct</u> 3- <u>Condition of attack</u>	A P C D 1.Age >14yrs 2. Afraid 3.P.P 4.P.M 5. Consciousness 6. Deception	1- General Violence											
			<table><tr><th></th><th>Wounds</th><th>From the victim</th></tr><tr><td>1)Clothes</td><td>Tears Lost button</td><td>Hair, blood</td></tr><tr><td>2)Body</td><td>A, B, B</td><td></td></tr><tr><td>3)Penis</td><td>A, B, B</td><td>Vaginal epith + Vaginal discharge</td></tr></table>		Wounds	From the victim	1)Clothes	Tears Lost button	Hair, blood	2)Body	A, B, B		3)Penis
	Wounds	From the victim											
1)Clothes	Tears Lost button	Hair, blood											
2)Body	A, B, B												
3)Penis	A, B, B	Vaginal epith + Vaginal discharge											
		1-Venereal Diseases * C/P→ discharge * Culture → Gonorrhea. * Serological.											

Virginity

1- **Definition:** No sex intercourse

2- **Is asked in:**

- هي → Impotence
 هي → Rape
 هو → No Virginity (Laylet el dokhla)

3- **Signs Of Virginity:**

1. Breast —————→ Firm, small nipple , rosy areola
2. Labia Majora —————→ (next to it) Fourchette - intact
3. Labia Minora —————→ (next to it) Post. commissure intact
"pinkish"
4. Vagina —————→ (next to it) Hymen

5. Causes of rupture of hymen:

6. Types of hymen:

1- Semilunar (Crescentic)



2- Annular



3- Imperforate



4- Cribriform



5- Septal



6- Dental



7- Fimbriate



MLI:

- 1- Imperforate
- 2- Annular & dental "Elastic hymen" → allow intercourse without any rupture
- 3- Dental & Fimbriate

D & F	Ruptured (deflorated hymen)
1) Symmetrical 2) Folds 3) α Vaginal Wall 4) Pink	1) Irregular (Asymmetrical) 2) Tear 3) Reach the vaginal wall 4) White, Opaque

- 4- Recent Or Old Rupture

Recent	Old
• Painful • Tender • Bleeding • Swelling • Membrane } edges	 • Covered with scar which is opaque on transillumination.

Pregnancy

1) MLI:

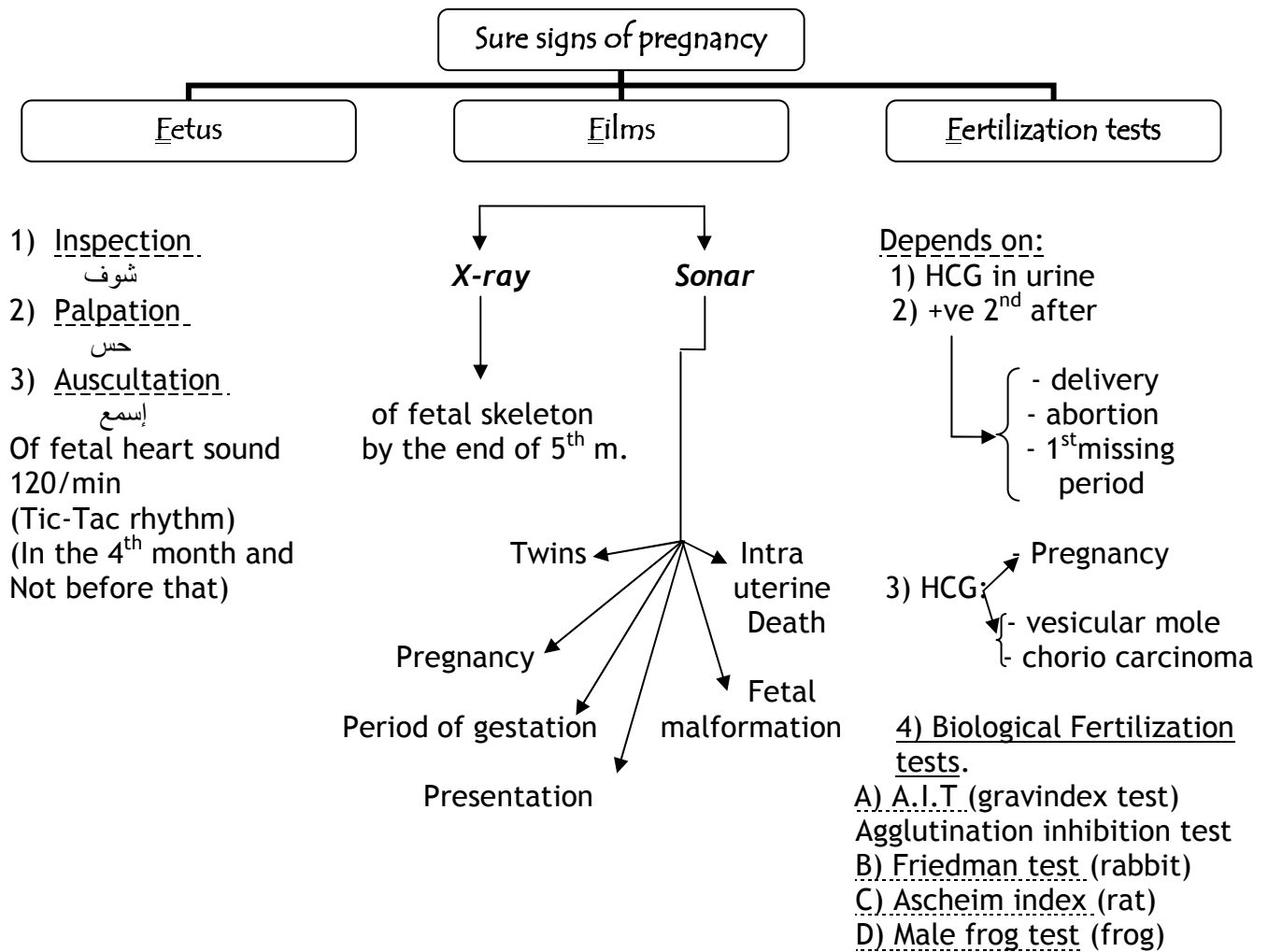
- 1- Divorced (Alimony → (زيادة النفقة علشان الولد).
- 2- Inheritance (widow → (الأرملة).
- 3- Capital of sentence for death (المتهمه).
- If she is pregnant there they have to delay her sentence for death until 2 years after delivery.
- 4- Rape.
- 5- Illegal pregnancy قضية خيانة.

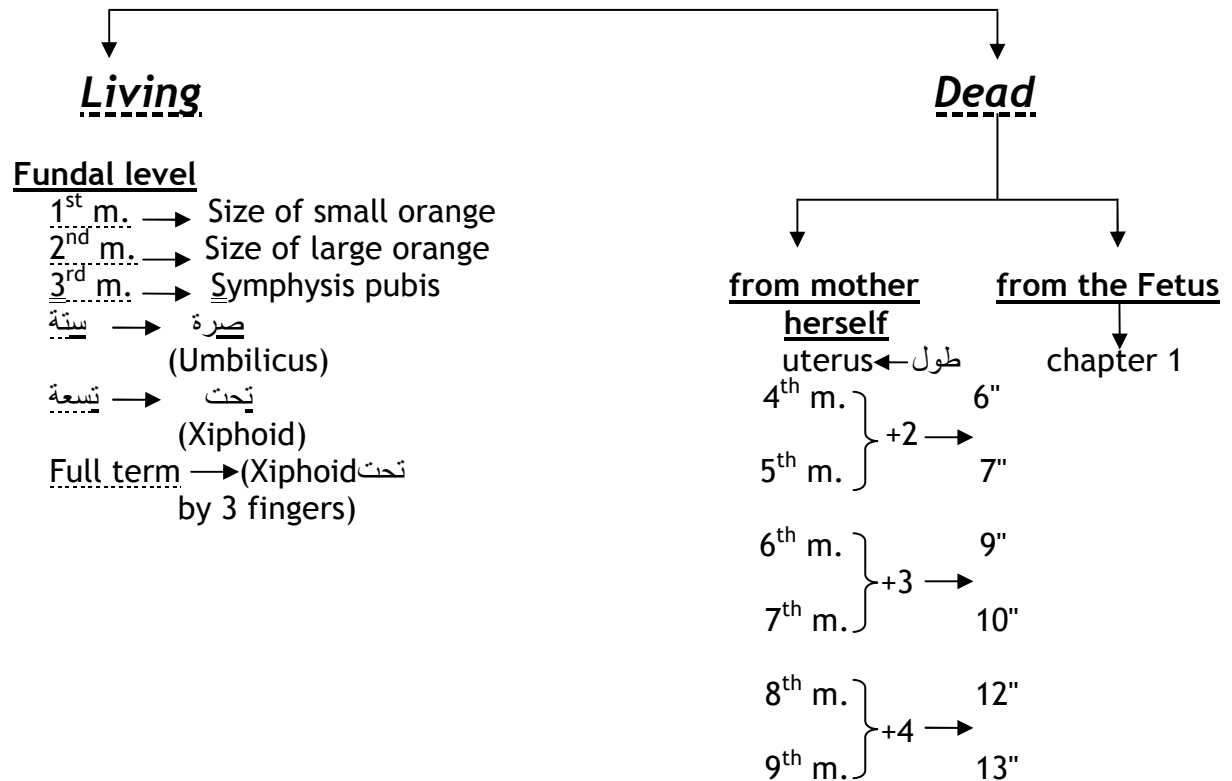
2) Probable signs of pregnancy:

Pigmented / Dark / Secretions

- A. Breast → Dark areola + colostrums
- B. Abdomen → Enlarged + linea nigra (striae gravidarum)
stretch collagen fibers
- C. Vulva → Dark ↑ Vs
- D. Vagina → Dark ↑ Vs + secretions
- E. Cervix → secretion

3) Sure signs of pregnancy:



4) Period of gestation:

Diagnosis of fetal sex

- 1) Sex chromatin test → fetal epithelial cells in the amniotic fluid → hazardous
- 2) Ultrasonography → safe & reliable

***AHI* Artificial Human Insemination**

Def: instillation of semen → genital tract of female without sexual intercourse

Indication:

- Male → impotence
- Female {
 - vaginismus
 - Dysparunia
 - Hostile vaginal discharge

Types:

- 1) Homologous:
 - a) Semen of husband → No legal problem.
 - b) Done in front of husband
- 2) Heterogonous or donor:
 - a) Semen of donor → illegal child
 - b) Illegal by law

Delivery

1) MLI:

- 1) Inheritance
- 2) Interchange
- 3) Infanticide

V.V.IMP

2) Signs of recent delivery (living):1) General → exhaustion2) Breast → Dark areola + colostrums3) Abdomen → (Lax/ Flabby /redundant/ striae)
→ Uterus level:*Above umbilicus عالي → after delivery على طول*Between umbilicus & pubis واقف في النصف → week وان*Pelvis تحت → Ten days*Size =Normal → Six weeks4) Tears:

{ Perineal
 Fourchette → (connects the two labia majora)
 Hymen

Exception some times occurs in female with elastic hymen doesn't Rupture in the 1st intercourse but rupture at delivery

5) Vagina: "Lochial discharge"

- Sanguineous (Red → bloody) → 1st 5 days
- Sero sanguineous (Yellowish red) → 5 days
- Serous (Yellowish) → 5 days
- Disappears → after 15 days

6) Cervix: (external cervical os)

{ 2 fingers → immediately after delivery
 1 finger → 1 week after delivery
 X X X → 2 weeks after delivery

7) HCG → positive

3) Signs of old delivery in living:

- 1) Breast → Dark areola
- 2) Abdomen { Feebly
Striae
- 3) Vulva → Old scars
- 4) Vagina { Lax
Smooth wall
- 5) Cervix { Old scars
Transverse slit

4) In dead → The same + uterine examination

V.V.IMP

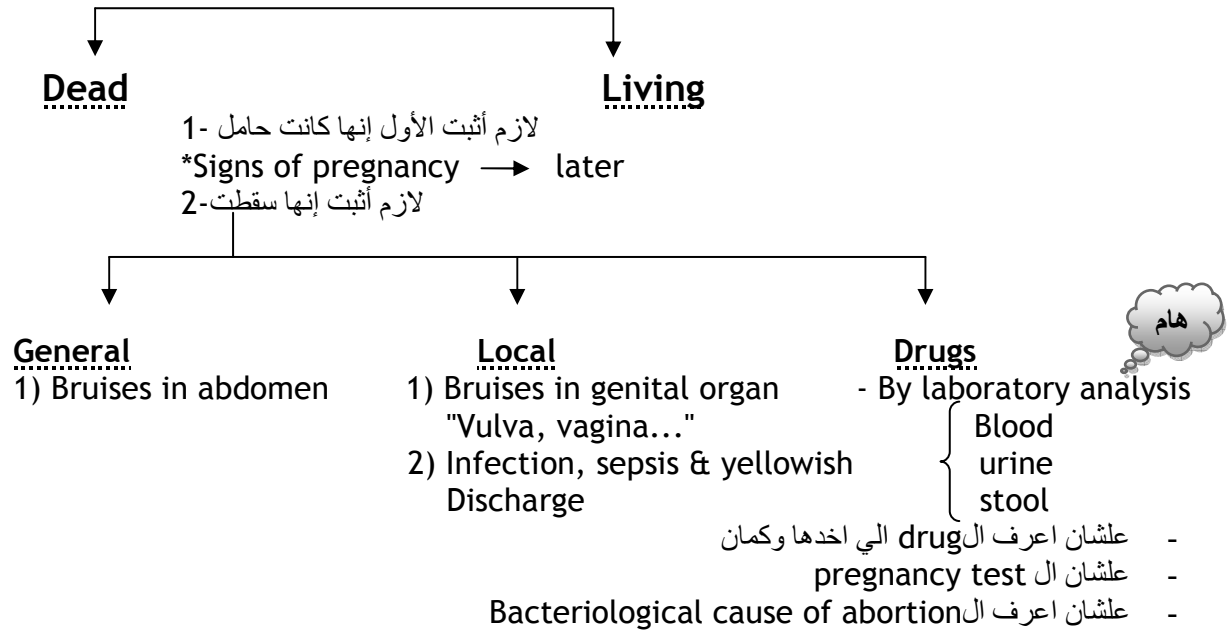
◆ Difference bet. Parous & Nulliparous:

Item	Nulliparous	Parous
Uterus - Length - Body / cervix - Cavity - Mucosa - Wall	2" 1 △ rugae thick	3" >2 globular smooth (+raised blood tinged area at the placenta site) thin
Cervix	- Opening "round & small" - No lacerations mucosa "arbor vitae"	- Transverse slit - Lacerated with no mucosa "arbor vitae"

Oral

N.B:In nulliparous:

Cervix → Mucosa Arbor vitae
(Similar to arborization that occur in putrefaction)

5) Diagnosis

➤ But in dead:

Cause of death

لازم أقول ال

Abortion

1) MLI:

Female	Male
1) Quarrel ضد جارتها ضربتها في بطنها (ترفع قضية لصالحها)	1) License اسحب رخصة مزاوله مهنة الطب
2) Doctor ضد الدكتور (ترفع قضية لصالحها)	2) Discover أكتشف بنفسى إنها جبالى وكانت ساقطة
3) Concealing تنكر الحمل وجوزها يطالب بالكشف (ضدها)	3) Doctor "collogues" يجيب دكتور زميله علشان يثبت حالة
	4) No death certificate لأنه فيه حد قتلها يعنى جريمة

2) Types:

- 1) Spontaneous قضاء وقدر
- mother → CHD مش شرط كل الأمراض
 - mother → CRF
 - Fetal → Disease أى حاجة
 - Placental → Separation

2) Therapeutic "Legal" القانون سمحها بيه → to save mothers life

- Mother → T.B, CHD, Mania, CRF, Rubella
- Fetal → Intrauterine fetal death
- Pregnancy → Bleeding, eclapsia, hyperansine gravidarum disease بترجع Diseases

Mechanism of action:

- 1) Metals → ovum death
- 2) Purgative → Reflexelly
3C + J (contraction to stomach + reflex contraction to uterus)
- 3) PG. → Ecboic direct stimulation to uterine muscles
Plumbism
Plants ↑ uterine contraction
Pituitary

شفوي هام

How does Pb cause abortion?

- 1) ovum death
- 2) ecboic

Forensic Medicine Notes

3) Criminal "Illegal" جريمة → any thing but not save mother's life

Methods
cause of death

هام جدا جدا جدا

Therapeutic	Criminal		
1) Capsules "Vaginal" eg: Prostaglandins → Contraction 2) Curettage operation (D&C) (Dilatation & Curettage) كحت 3) Catheter & aspiration Ovum تشفط ال <u>Late period of pregnancy:</u> 1) Abdominal hysterectomy يفتحوا البطن ويطلعوا ال Baby	General Violence الستات، الداية أو الدكتور -Exercise تشيل حاجات ثقيلة -Weight تنط من إرتفاع -Height تتط من إرتفاع -Blow بوكس في بطنها • Only in predisposed females (its effective) س: الحاجات دي تسقط أى ست؟ ج: لأ.. المعرضين فقط للسقوط من أى حاجة شفوى هام	Local Violence • Professional الدكتور (similar to therapeutic method) كحت أو • Mid wife / Nonprofessional الستات، داية → <u>Solid</u> أعواد ملوخية أو إبرة تريكو Knitting needle Perforation to amniotic mem. بتعمل Rupture → <u>Liquid</u> Antiseptic solution e.g.: Iodine , glycerin بتكوى علشان ميحصلش sepsis → <u>Plugs</u> شاشة ، قطنة وبتحطها: - Arsenic - Mercury (Irritation & contraction)	Drugs <u>3Ps:</u> • <u>P</u>rostaglandins ecboic → direct action & contraction - <u>P</u>ituitary extraction - <u>P</u>lants - <u>P</u>lumbum • <u>P</u>urgative (Reflex) <u>3c+J</u> - <u>C</u>olocynth - <u>C</u>astor oil - <u>C</u>roton oil - <u>J</u>alap • Metals (<u>P</u>oisons) - Lead - Mercury - Arsenic - Antimony

❖ Cause of death:

Wounds من شابت ال
(Stab, cut throat, abortion)

- 1) Shock
- 2) Sepsis
- 3) Hemorrhage
- 4) Embolism
- 5) Poisoning "From drugs"
- 6) Hepato_renal Failure

Aloes
 Senna
 ONLY

Forensic Medicine Notes

1) Shock: { Sympathetic shock → due to perforation of uterus "severe pain"
 Parasympathetic shock → Blow in vaginal area

2) Hemorrhage: { Primary تموت حالاً → IU. Hge. Retained fetal content
 → EU. Hge. Dye to perforation of uterus
 Secondary متأخر بعد إسبوع مثلاً due to sepsis

3) Sepsis: { Instrumental causes
 Non_instrumental الأوضة مش معقمة مثلاً

4) Embolism: { Air embolism → in injection
 Fluid embolism

→ May be Fat embolism



من الBaby لأن الطفل ربنا حماه بغطاء دهنى

Infanticide

- 1) Definition: Murder of Newly born (1st 2 weeks) → Viable (>7ms. IU)
→ Live birth

Report "6 items"

شفوي

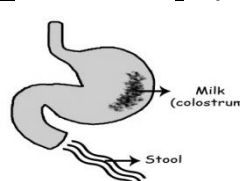
- 1) Identification (as before)
- 2) Maturity (9ms = full term)
- 3) Live & still birth نازل صاحي وللا ميت
- 4) Age? How long he lived? عاش قد ايه
- 5) Causes of death
- 6) P.M interval (as before) "chapter 2"

Written

2) Signs of 'aturity:

3 دوائر	2 اطوال	2 اطوال	2 أوزان
Osific ○ → Knee + cuboid center	Hair شعره طويل	50 cm طوله	Wt. of fetus = 3.5kg
○ Testes → scrotum If male	Nail ظوافره طويلة	50 cm طول Umbilical cord	Wt. of placenta = 600 gm
○ Circumference 13 P.F → closed A.F → opened			

3) Live Or Still birth:

External	Internal
1) ● Umbilical cord → 12 → 12 2) ● A.M wound 3) Skin → Maceration للميت Desquamation للصاحي - Start after 2 ds. Stop after 2 wks. 4) Stool (yellowish) → (D.D → Meconium أخضر)	L I V ↓ ↓ ↓ Lactate Inspiration Vascular 

Umbilical cord

Hyperemia

Ulceration

Fall "raw area"

d d w w

1 2 1 2

Form "healed wound"

Normal ال زي

ال قبل ال C ال قبل ال V

Umbilical Cord & Umbilical Vessels

So,

ال 12 قبل ال 21

* Vascular:

a) Umbilical vessels

2 1 2

1

w

Organization starts & end 2 wks.

b) Foramen ovale → 1 wk.
(Between 2 atrium)

c) Ductus arteriosus → 1 m.
(Pulmonary & aorta (بين ال) anatomical)

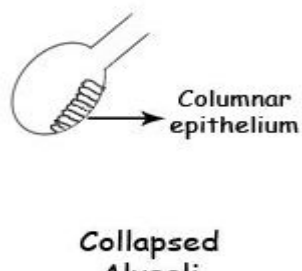
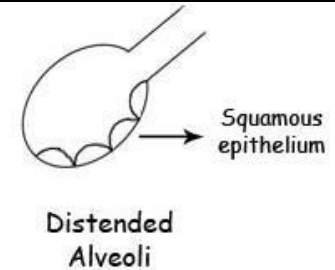
After 6 hrs. functional closure

ligamentum arteriosus

Inspiration



	Non Resp.	Resp.
1) <u>N.E</u> of lung		
• <u>C</u> hest cavity	-X	✓ Full the chest cavity & completely covered the heart
• <u>C</u> olor	-Pinkish	-Mottled/Mosaic مبطشة زي الموزيك .. لان فيها هواء
• <u>C</u> onsistency	-Firm → No O ₂	-Crepitations → O ₂ فيها
• <u>C</u> ontour (edge)	-Sharp	-Rounded edge لأن الهواء بيضغط كل حروفها
• <u>C</u> ompress under water	-X	-Bubbling

2) <u>M.P of lung</u>	 Columnar epithelium Collapsed Alveoli Columnar epith. Salivary gl. <i>زني ال</i> Collapsed alveoli	 Squamous epithelium Distended Alveoli Squamous epith. <i>لان الهواء بططها</i> Distended alveoli
-----------------------	---	--

3) Test: "Fourty 40"

- a) Static "Fodere's test": Wt. of respired lung $\Rightarrow$ doubles that of non.respired lung due to blood

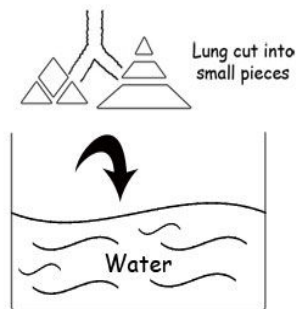
$\downarrow$ Spasm $\rightarrow$ Ductus arteriosum *وبيقفل ال* Spasm *لما بياخد نفس بيحصل*

40 gm $\rightarrow$ (non.respired) & 80 gm $\rightarrow$ (respired)

شفوي هام

b) Hydrostatic flow:

- Principles: Air $\rightarrow$ $\downarrow$ specific gravity $\rightarrow$ floatation in water
- Procedure: Lung cut into small pieces $\rightarrow$ squeeze these pieces if floated

- Results:

- 1) All parts sink $\rightarrow$ Non respiration
- 2) All floated but some pieces sink $\rightarrow$ Partial floatation
(Consider dead because this air causes partial flow is due to blow of doctor in the child's mouth)
- 3) All lung parts float $\rightarrow$ full respiration

- Objections = false results:

- 1) Non respired lung: float due to putrefaction or artificial Respiration

لو ضغطت عليها تطلع
لكن الهواء الطبيعي عمره ما يطلع بسبب الضغط

- 2) Respired lung: sink due to disease

➤ Hydrostatic test not used in:

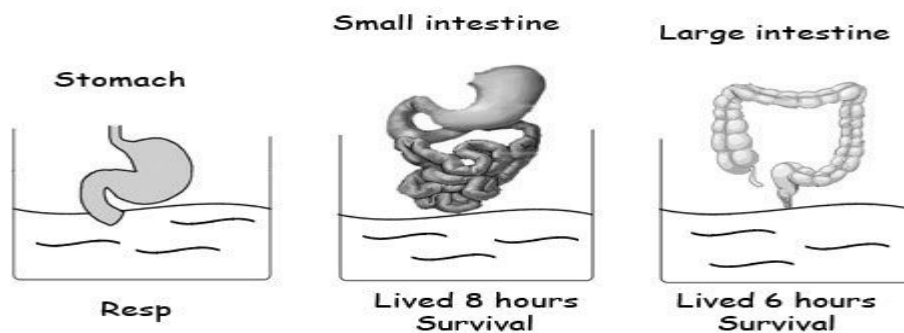
1. Maceration
2. Milk in stomach
3. Multiple congenital anomalies
4. Mother → can't live without mother "5 Or 6 months"

شفوى هام جدا!!!!

c) Stomach: Bowel test:

- Principles: Air swallowed on respiration

مش مهم ليه؟! As 97% → not swallow air → No mouth breath



4) Age? How long he lived?

External				Internal		
✓	●	●	✓ ✓	L	I	V
✓	S	S	X	X	✓ ✓	✓ ✓

Causes of death:

1) Accidental:

- Heading { precipitant labor وهي ماشية
Difficult labor دماغه على إختبط على
- Asphyxia { Acc. Strangulation "by U.C"
Suffocation "by muocus"
- Birth injuries
- Blood group & RH incompatibility
- Congenital syphilis
- Diseases of unknown etiology
- Infections
- Congenital anomalies

2) Act of emission:

إهمال

Clothes (Neglecting clothes)

Colostrum (Neglecting feeding) مش بترضعه

Cord (not tied) مش بتقطع الحبل السري

س: يموت من إيه؟؟

ج: يموت من Infection مش Hge

Except: in partial nasal obstruction مش بيعرف يتنفس كويس

Umbilical cord vessels مش هيقل

N.B: Not hge as the umbilical vessels reflexly contract on respiration

3) Act of commission: عنف وعدوان

Smothering, throttling, strangulation, drowning, choking, cut throat,
Head injuries, burning, electrocution & poisoning

N.B:

When is the test for live birth not necessary?

- 1) Macerated fetus
- 2) Monster baby (babies with multiple anomalies)

شفوي
هام

Child abuse

(Battered baby syndrome/ Caffey syndrome)

- 1) Definition.
- 2) Variants.
- 3) Types of injuries.
- 4) Radiological Evidences.
- 5) Recognition (Diagnosis) إزاي تعرفه
- 6) DD.
- 7) Role of forensic pathologist.

- 1) Definition: (By parents) أو أى حد بيرعاه
Non_accidental physical, emotional or sexual injury inflicted on children by persons caring for them with males > females دائماً الأب والأم بيكذبوا فى كلامهم

2) Variants:a) Non_accidental

- Physical abuse يتضرب ويتلطمش ويتحرق
- Emotional abuse مفيش أى رعاية أو إهتمام
- Sexual abuse

3) Types of injuries:

- 2B { 1) Bruises
2) Burns

- 2H { 3) Hge (retinal) بوكس فى عنيه
4) Hge (Subdural) أو دماغه (1) → causes of death

- 2F { 5) Fracture
6) Fremulum of lips → torn الشفة مقطوعة

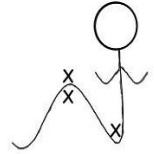
- 1) Bruises: - Site { Face (cheeks) } لازم
Trunk
Upper hand } ممكن لأ
Upper leg }
- Character { Multiple
Different color

(ببيضرب فى أوقات مختلفة Donates different times)

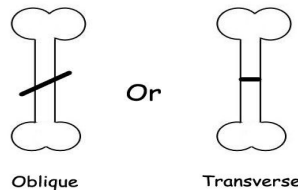
(2) Rupture of
Abd. Organs

Forensic Medicine Notes

- 2) **Burns:** - Cigarette } "spared areas"
 - Scalds } (Involuntary Flexion of knee & hips
 when lowered in hot water)



- 4) **Radiological:** - **Fracture:** { - Extremities
 - Clavicle (Torsion & traction) الكسر لبرا دائما... يتلوى ايده
 - Ribs → Lat. & post. Compression كسر جانبي وخلفى
 - Skull → "Most frequent" (**Cause of death**)
- **Extremities:**
 1) Epiphyseal Metaphyseal { حنة صغيرة زى ال cornea
 ↓
Indicate Abuse حنة كبيرة إتكسرت بتبان فى x-ray زى ال Buckets handle
 نتيجة للشد واللوي
 2) Diaphyseal (May be accidental) "**abuse** مش شرط تكون"

5) **Recognition:**

"Diagnosis":

	Children	Parents
1) Character	- Illegal ابن غير شرعى - Unwanted غير مرغوب فيه نتيجة فقر أو شغل الأم - Abnormalities متخلف عقليا - 1-3 yrs. صغير جداً	- Mentally ناس شايقة إن دى التربية الصحيحة - Financial troubles مشاكل مادية (Money) 2M
2) Evidence	2D a) D iff. inj.+ Hospitality b) D eprivation الحرمان من كل حاجة من اللبس والأكل وكل حاجة والطفل بيبقى شكله معفن .. لأبوين كويسين مادياً	2D a) D elay in seeking ttt بيحبوا العيل وهو بيموت b) D iscrepancy "Dis-explanation" تناقض فى الكلام ، بتدى تفسير غلط لما تسألها الجروح أو الحروق دى من إيه؟؟

6) Role of forensic pathologist:

1) scene يعاين المكان	2) Dissection يعتمد على التشريح	3) Histological	4) Laboratory
- <u>H</u> istory Child parent Medical + Social أسرة سعيدة ولا لا ؟ * Osteogenic imperfection in children or hemophilia * Psychiatry ttt for adult - <u>H</u> ouse - <u>H</u> ealth of child - P.M changes	من برا الوجه 1) External: Features Clothes Wound "TEN SAD" 2) Internal → Wound 3) X-ray 4) Dactylography	- Bruises → Healing يشوفوا بقاله كام يوم	- Toxicological examination ↓ Electrolyte Imbalance especially Vitrous humour

7) DD:

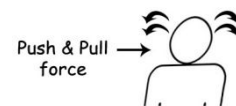
1) SIDS "Sudden Infant Death Syndrome"

2) Shaken Baby Syndrome "Sub type of child abuse"

أثناء تعنيف الطفل دماغه تفضل تروح لقدام وتلرجع لورا لأن دماغه بتروح وتيجي فتتج

• Cause of death:

- 1) Subdural Hge
- 2) Subarachnoid Hge
- 3) Retinal Hge

• Due to:

- 1) Whiplash action: of the child heavy head over weak neck
- 2) Immature partially membranous skull
- 3) Soft immature brain
- 4) Relatively large subarachnoid space

N.B: Not brain injury → لازم خبطة على الدماغ
 الوجة دى متعملش brain injury لكن تعمل Vein injury

IMP
MCQ

Medical Ethics

Physician - patient	Physician-physician	Physician-society
1) <u>Consent:</u> (Except in case of emergency) - <u>Informative</u> لازم المريض يعرف - <u>Invalid</u> غير صحيحة e.g.: - <u>Mentally</u> مجنون - <u>Mind</u> <21 yrs قاصر - <u>Malprocedure</u> عمليات غير شرعية (Abortion) - <u>Misrepresentation Or Fraud</u> 2) <u>Medical certificate:</u> شهادة طبية - No fees ممنوع أخذ فلوس - No false data بيانات خاطئة - Finger prints ← Age estimation - Photo recent 3) <u>Professional secrecy:</u> أسرار المهنة → Disclosure/ Disulge كشف أسرار However professional secrecy is disclosed in the following condition: <u>Court</u> 	1) Should not critecise مش تهاجم زميلك 2) Should not refuse 3) % of fees for referral to other colleague is a misconduct (Dichotomy)	1) <u>Registration:</u> → syndicate of medical practice لازم بعد التخرج اسمك فى نقابة مزاولة المهنة 2) <u>Erasion:</u> شطب ↓ Refraining Discontinuity Conviction 3) <u>XX</u> 2C { <u>Commission</u> متفق مع صيدلية أو دكتور وبتأخذ نسبة <u>Commercial jobs</u> سواق تاكسى ، يقال <u>False data</u> أقول حاجات غلط 3F { <u>False report</u> أكتب كلام غلط <u>Fraudulent method</u> العلاج الخادع بالدجل والشعوذة <u>Advertise in press</u> 4) <u>Malpractice:</u> اخطاء المهنة ..هام جدا شقوى (physical damage) ↓ Incompetence جاهلة Negligence مهملة ↓ e.g.: - <u>Transfusion of ICBT</u> نقل دم غلط - <u>Transmission of disease</u>(syringes) ↓ Nerve paralysis عديتك بحقنة ملوثة مثلا - <u>Toxic dose of drug</u> - <u>Thermal injuries</u> (Over dose LASER) - <u>Towel</u> فوطه فى بطن المريض



Written &
oral v.imp.

Court

- 1) Malpractice → if he is a caused for الدكتور أتهم أنه
- 2) Medical expert witness → give court all information revealed on
examination of the person طلبوه في المحكمة كشاهد ذو خبرة
- 3) For patient عشان خاطر العيان نفسه → Mentally & Minor.
- 4) Medical certificate عشان العيان بس طالب شهادة طبية
- 5) Community عشان خاطر الناس {
 - ↓ Crimes "Illegal abortion"
 - ↓ Communicable diseases